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AVIATION

The Oldest American Aeronautical Magazine

AUGUST 23, 1926 Issued Weekly PRICE 15 CENTS

Air Corps Martin Bombers Flying in Formation over Wright Field, Fairfield, O.

Army Air Corps Photo

VOLUME XXI

NUMBER 8

SPECIAL FEATURES

THE PROPOSED TRANS-ATLANTIC FLIGHT

PROGRESS OF THE AIRPLANE RELIABILITY TOUR

THE WRIGHT-MOREHOUSE 25-30 HP. ENGINE

GARDNER PUBLISHING CO., Inc.
HIGHLAND, N. Y.
225 FOURTH AVENUE, NEW YORK
Entered as Second-Class Matter, Nov. 22, 1920, at the Post Office, at Highland, N. Y. under Act of March 3, 1879.

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AUGUST 23, 1926

AVIATION

VOL. XXI. NO. 8

Published every Monday

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GARDNER PUBLISHING COMPANY, Inc., *Publishers*

BUSINESS AND EDITORIAL OFFICES: 225 FOURTH AVENUE, NEW YORK
CABLE ADDRESS: AEROENG
Publication Office
HIGHLAND, N. Y.

Subscription price: Four dollars per year. Canada, five dollars. Foreign, six dollars. Single copies, fifteen cents. Back numbers 25 cents. *Copyright 1926, by the Gardner Publishing Company.*

Issued every Monday. Forms close ten days previously. Entered as second-class matter Nov. 22, 1920, at the Post Office at Highland, N. Y., under act of March 3, 1879.

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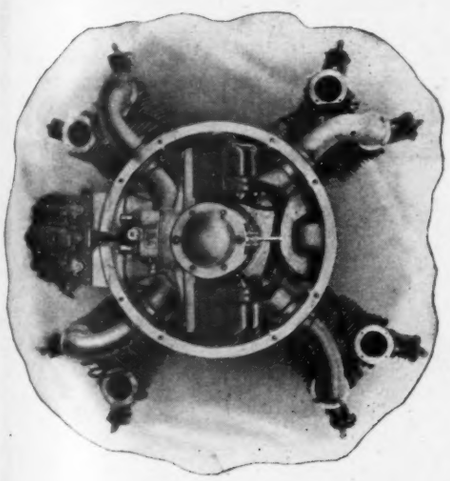

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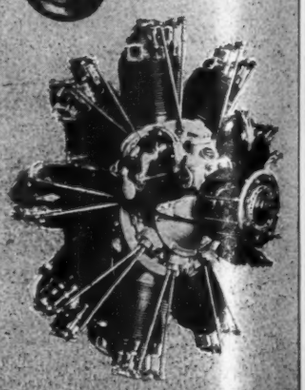

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VOL. XXI AUGUST 23, 1926 NO. 8

The Value of the Reliability Tour

AIRPLANE CONTESTS always possess a marked value, not only from the standpoint of technical development but to the manufacturer in the form of publicity. If it be a speed race, then the winner will justifiably capitalize his preformance in obtaining a market for his products. Likewise, will the producers of all the numerous accessories, which have figured in the winning of the contest, put the part they have played to valuable sales promotion purposes. This process is the logical outcome of all forms of airplane contests just as in the automobile industry. But, in the aeronautic field, where general public education is as important to the whole industry as is individual publicity to any one manufacturer, few forms of contest are as significant as the Commercial Airplane Reliability Tour which has just been held on its second annual occasion.

Instigated last year rather as an experiment in an entirely new form of contest—to aviation, at least,—the Commercial Airplane Reliability Tour for the Edsel B. Ford Trophy was a marked success and opened up such a wide range of publicity value that it immediately became regarded as one of the most important national air events of the year. This was natural for, as has already been observed, an airplane contest without publicity value of some sort will have limited success, since few contests can thrive entirely upon private and purely sportmanship support.

So it is that the value of the Reliability Tour form of contest, has, very evidently, been recognised to an even greater extent this year, with the result that no less than twenty-five airplanes set out from Detroit to tour the Middle Western states, the entries, almost without exception, being sponsored by members of the Aircraft Industry who definitely have something to sell. From the standpoint of the Aircraft Industry, this condition makes the Tour of the greatest importance, while, from the viewpoint of the purchaser, by few other means would it be possible for him to obtain so practical an exhibition of the numerous products of the Industry from which to choose that which will best suit his requirements and his pocket.

The Tour has this great advantage, that, while there is sufficient competitive aspect in it to encourage participants to enter their finest products, the element of competition is not such as to bring out freak entries having no marked commercial value. That is to say, the airplanes entered in the Commercial Airplane Reliability Tour were all real touring planes, with the exception of the two Ford transport planes, which, too, have their commercial value. In participating in the Tour, regardless of the points they may respectively have secured according to the contest formula, the planes have demonstrated their ability and suitability to continuous cross-country flying either for commercial or private purposes.

In laying out the schedule for the Tour, the sponsors endeavored to arrange the times of arrival and departure at the various points of call such that the business populace of each municipality was afforded ample time to view the airplanes in the Tour at close quarters, and such that the participants were able to carry out demonstration flights to the satisfaction of prospective customers. Bearing in mind these features, the Commercial Airplane Reliability Tour can only be regarded as one of the most valuable national events of the year. While the actual results of this year's Tour have been watched with much interest, it must be realized that every airplane which participated has demonstrated its serviceability, either in regular airline operation, aerial service work, or as a touring plane for the private owner, and any machine which flies to schedule over a period of two weeks, in a variety of weather such as was experienced in the Tour, for a distance of nearly 2600 miles through the Middle West must be a good plane.

The Military Value of Formation Flying

THE COVER picture of this issue of AVIATION shows a formation of Martin Bombers of the United States Army Air Corps, during the maneuvers carried out a short while ago at Wright Field, Fairfield, O. Practice in formation flying is one of the most important aspects of a service pilot's training simply because of the collossal tactical value of the airplane formation.

During the early days of the War, when air tactics were being practically investigated for the first time, the great majority of air defense and air offense was carried out individually by airplanes, with comparatively little orderly cooperation. As the science of offensive and defensive air operations has been developed, so a definite code of air tactics has been created involving one of the paramount features of military strategy, namely, that of cooperation. Toward the close of the War, it became customary for air operations of any importance to be carried out with mass organizations of a number of airplanes rather than through individual activity of planes operating as units.

To the German Ace, Captain von Richthofen is usually attributed the inauguration of formation fighting in the air and since that time the science of what may be termed air strategy has been developed considerably. The primary weapon of the air is the gun and, therefore, fire efficiency is of great importance. Air tactics which aid the fire efficiency of attacking airplanes by providing formations which enable maximum offensive should, consequently, be a subject of extensive study in any air defense organization. The importance of training in formation flying cannot, therefore, be overestimated.

On The Proposed Trans–Atlantic Flight

The Sikorsky S-35 Special Three-engine Plane Nearing Completion for Flight this Month.

THE GIANT Sikorsky airplane, S-35 Special, commanded by Capt. Rene Fonck, famous French Ace, will take off late this month from Roosevelt Field, L. I., for Paris. If the attempt is successful and the distance between New York and Paris is spanned in a single hop, the flight will win a prize of $25,000. This was offered by Raymond Orteig, owner of the Lafayette and Brevoort hotels in New York.

Captain Fonck, who will command the flight, will be accompanied by Lieut. A. P. Snody, on leave from the Navy Department and commander of one of the PN-9 planes in last year's Hawaiian flight. Capt. Homer Berry of the Army Air Corps will be the third member of the flight personnel.

The flight is sponsored by the Argonauts, Inc., composed of the following members: Robert Jackson, Concord, N.H., Arnold C. Dickenson, Fitchbury, Mass., Capt. Rene Fonck, Col. Harold E. Hartney, vice-president of the General Airways System, and Igor I. Sikorsky, the designer of the first multi-engine plane and who is now building his thirty-fifth airplane for this flight.

Expert in Charge of Lubrication

Lieut. G. O. Noville, an automotive engineer of the Vacuum Oil Company, has been appointed flight engineer and is now busily engaged with the Sikorsky engineers on matters pertaining to lubrication. Gargoyle Mobiloil "B" will be used to lubricate the engines on this flight.

Lieutenant Noville was flight engineer and third officer on the Byrd expedition. The oil with which the trans-Atlantic flight will be made is the same oil which was used in the Josephine Ford, Comdr. Richard E. Byrd's Fokker plane which went to the Pole. Commander Byrd, upon his return from the Pole, was most enthusiastic concerning Lieutenant Noville's work and the performance of the oil he recommended. When Lieutenant Noville returned to New York he found waiting for him an invitation to have a large part in the trans-Atlantic attempt.

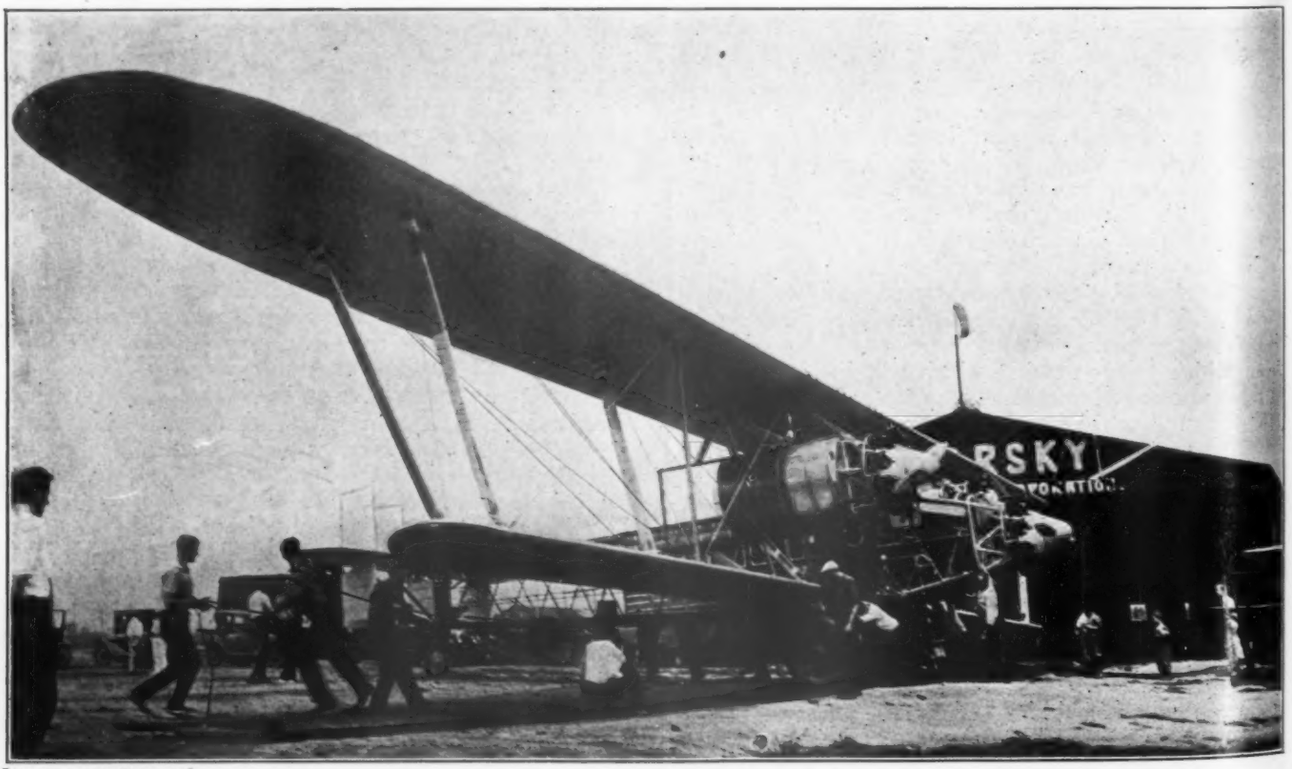
The actual course of the flight, as laid out, is about 3600 miles, but fuel, oil and other supplies will be provided for a flight of 4330 miles.

At an average speed of 100 m.p.h. the flight should be accomplished in a day and a half, but head winds or bad weather may necessitate longer flying. The plane will be in touch with both sides of the Atlantic by radio throughout the flight and the personnel will alternate as pilots, navigators and radio-men.

1260 Horsepower

The all-metal airplane to be used, is being built by the Sikorsky Aero Engineering Corporation and represents the result of Igor Sikorsky's eighteen years experience in the design and construction of airplanes, mostly of the larger types. The plane was designed as a passenger and freight carrier, equipped with three Gnome-Rhone-Jupiter engines of French manufacture. These engines develop 420 hp. each, driving tractor propellors. The plane was originally described in AVIATION, May 31.

The pilot's cockpit is equipped with dual controls. It is entirely enclosed, but sliding windows are located at the top and sides. A door at the rear of the pilot's cockpit leads to the cabin, which has a 450 cu. ft. space for cargo or for seating twelve passengers in comfort. The cabin is 4 ft. wide, 6 ft. high and 15½ ft. long. Two doors at the front of the cabin lead to the lower wing, so that during flight, mechanics may reach the two engines, carried in streamlined nacelles, if they should require adjustment. At the rear of the cabin, one door is located at the left side for entrance while the plane is on the ground while another door at the rear leads to the lavatory. Sliding non-shatterable glass windows 18 in. by 24 in. are arranged along the cabin which is finished in mahogany, fitted with electric ceiling lights, ventilators and heaters.



International Newsreel

The partially completed Sikorsky S-35 Special (three Gnome-Rhone-Jupiters, 420 hp. each) on which the trans-Atlantic flight is to be attempted

REMEMBER — NATIONAL AIR RACES, SEPT. 4-11

Radio equipment for transmitting on regular waves and short waves, will be used during the flight in an endeavor to keep in communication with surface ships and land stations. In addition to the radio, weighing 160 lb., other equipment to be used especially for the flight will weigh 330 lb.

Owing to the use of self compensating rudders, it is possibte to fly the plane on any of the three possible combinations of two engines without affecting the ease of control. The all-metal feature is another of the outstanding points of the design. The entire frame-work of the body is composed oi duralumin channels, tubes and plates, assembled with steel bolts and rivets. No welding is used throughout the entire structure. There are no wires or strucutral members crossing the cabin space and the cabin is braced with diagonal channel members, resulting in a particularly rigid body in which vibration is not apparent. Fabric is used for the outside covering.

Duralumin Wing Structure

The wing structure, which is made up entirely of duralumin, is the most advanced type of construction. Beams are built up to I-section formed by means of four duralumin angles, riveted to the central web of flat sheet duralumin. The ribs are formed of light sheet duralumin channels and angles. In plan form, the wing tips taper to a knife edge. High tensile strength tie-rods are used in the internal drift bracing system.

Ailerons, hinged on auxiliary beams aft of the main wing beams, taper at the tips and mortise into the wing. The tail surfaces built like the wings, are fabric covered. The stabilizer is adjustable and may be used without difficulty during flight to compensate for any disturbance of the fore-and-aft balance of the plane, or for varying the attitude of the machine for slow landing.

Further Details

The landing gear is of the divided axle type, made entirely of steel, with parts bolted together. No welding is used on any part. The wheel tread is exceptionally wide, being 18 ft. 4 in.

The general details of the machine are as follows:

Span, upper wing	101 ft.
Span, lower wing	76 ft.
Height	16 ft.
Total wing area	1095 sq. ft.
Weight empty	8000 lb.
Loading per hp.	19 lb.
Loading per sq. ft. of wing area	21.85 lb.
Crew of three (two pilots and one navigator)	510 lb.
Special equipment	590 lb.
Total weight of fuel and oil	15,200 lb.
Total weight of machine	24,200 lb.

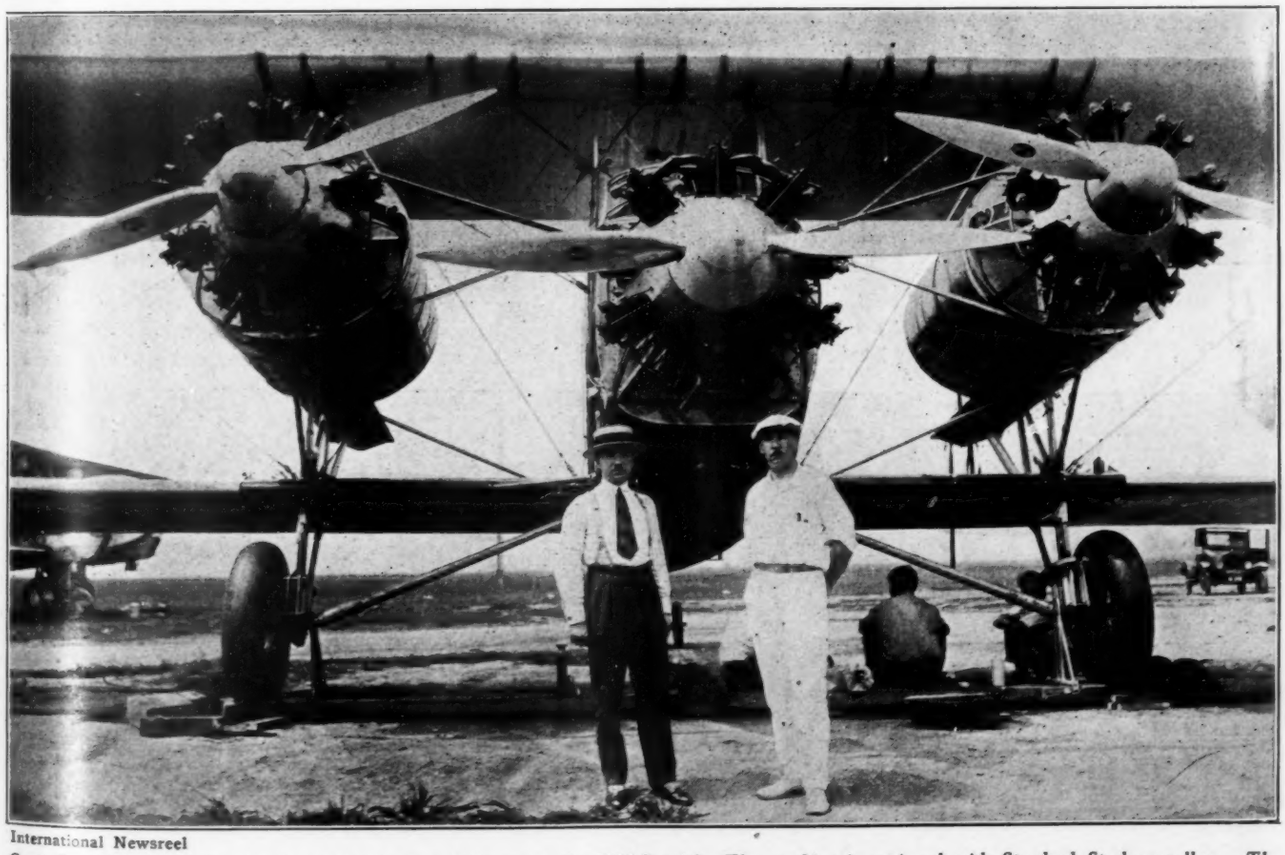
Fuel for the wing engines is carried in the rear part of the engine nacelles in streamlined tanks.

Contrary to the opinion of many persons, including many persons in the oil business, a specially made oil will not be used for this flight. A special oil was not prepared for the Byrd Flight or for the Army 'Round the World Flight' or for any of the other famous flights in which the Vacuum Oil Company's products have been employed. The oil will be the same Mobiloil "B" that is supplied for automobile lubrication and for airplane lubrication.

Lieutenant Noville's work has not only been the selection of the correct oil to take the plane on its 3600 mile flight but his work with the Sikorsky engineers has been to check up with them on the methods of obtaining lubrication as well as on the methods of fuelling the engine.

On the Byrd Aretic Expedition, it was realized that the engines demanded a heavy oil for best performance but it was predicted that it would be impossible even to start the engines in that low temperature with oil as heavy as Mobiloil "B".

Lieutenant Noville knew all of this and the problem had been solved before the Byrd expedition left New York. Lieutenant Noville produced a curious hood of canvass which fitted over the engines and helped gasoline stoves to heat them. This heating permitted the engines to turn freely. Five gallon cans of Mobiloil "B" were heated until the contents flowed freely in the sub-zero temperature. The warm Mobiloil "B" was put in the engines and the engines started on the first turn. In Commander Byrd's trip to the North Pole not one of the engines missed a single explosion.



International Newsreel

Capt. Rene Fonck (left) and Igor Sikorsky, the designer of the S-35 Special. The machine is equipped with Standard Steel propellers. The large cylinders behind the wing engines are gasoline tanks. Additional tanks of a streamline shape are yet to be added aft of those seen in the photograph.

REMEMBER — NATIONAL AIR RACES, SEPT. 4-11

Texas-Chicago Air Mail Operates 97 per cent Perfect

NATIONAL AIR TRANSPORT, INC., on Aug. 11, completed the first three months opration of its thousand-mile Texas-Chicago line, with an average efficiency of over 97% perfect.

Simultaneously with the closing of this first quarter-year of experimental flying, the General Manager, Col. Paul Henderson, former Second Assistant Postmaster General, announced that he had recommended to his board of directors that passenger service be established just as quickly as the necessary equipment can be produced. This anticipates by two years and a half the program contemplated by the National Air Transport when it began operations on May 12.

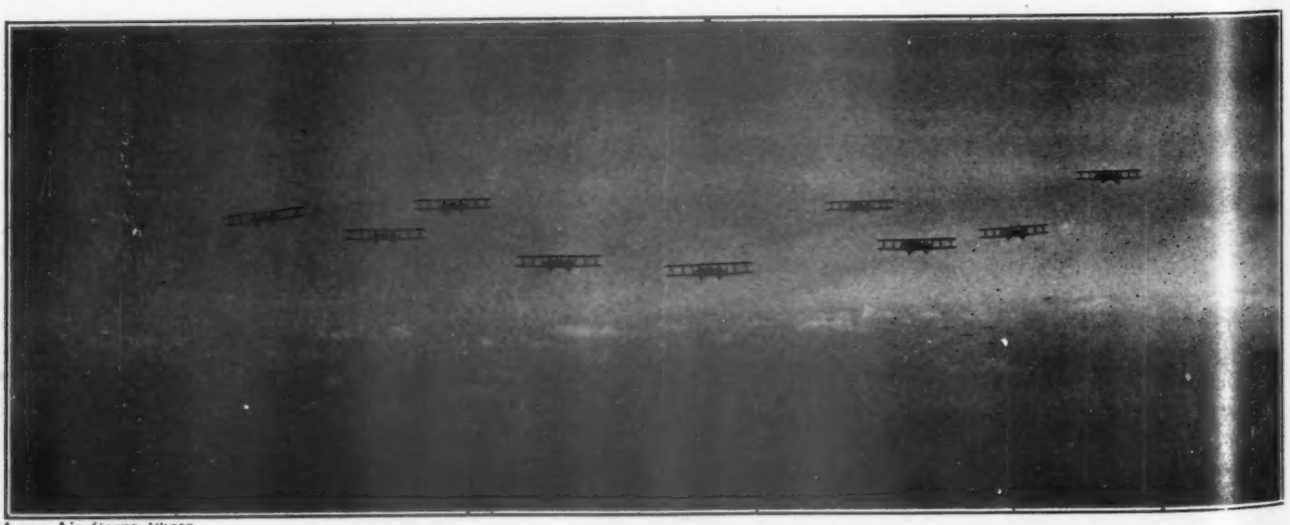
"Our decision is based on operations, which have been far more successful than we had reason to expect from a pioneer effort, and is also greatly accelerated by the desire of the people in the Southwest for quick transportation to Chicago and the East", said Colonel Henderson.

Under contract with the Post Office Department to fly the route from Dallas to Chicago via Fort Worth, Oklahoma City, Wichita, Kansas City, St. Joseph, Moline, Rock Island, and Davenport—just 1,000 miles—in an elapsed time of 710 min., N.A.T. planes showed an "on time" record of 99% plus during the 20 days of May; 97.5% during June; 98.6% during July; and 94% plus during the ten days in August. At Chicago the N.A.T. effects junction with the Government-operated New York-Chicago overnight and transcontinental services. "Our service", said Col. Henderson, "has been practically 100% perfect from the Southwest to Chicago. Only once in 91 days have we failed to deliver our cargo at Maywood, a large portion of which is through-mail to New York, Philadelphia and Boston. That lapse occurred on May 18, when we deliberately held our northbound plane at Moline, due to the tornado which swept West of Chicago with such disastrous effects. Leaving Moline before dawn the following morning, we had our mail on the eastbound transcontinental airplane, leaving Maywood at 7.50 a.m.

"On the other hand, the Government operations between New York and Chicago have been such as to necessitate the N.A.T. machine leaving Chicago for the Southwest on twenty-two of these ninety-one days before the New York air mail plane, operated by the Government, arrived in Chicago, and this, notwithstanding the fact that National Air Transport's plane waited in Chicago two hours and fifteen minutes after the hour scheduled for departure in the hopes that the New York machine would come through. The reason for this is that the flying between Chicago and New York is made extra difficult, due to fogs which are frequently found over the Allegheny mountains. The Government is attempting to fly this route with old-fashioned, single-engine airplanes. Their old planes are not as good, and their new planes are no better than those being used by the N.A.T. over the Texas-Chicago route where flying conditions are much easier. In my opinion, it will be too much to hope that this New York-Chicago overnight service will improve until the Government employs modern, three-engine airplanes for this flying. With this fact demonstrated to our satisfaction, the National Air Transport has had built for it by the Ford Motor Car Company what is thought to be the most modern airplane of today [the Ford-Stout three-engine monoplane—EDITOR]. This airplane, made entirely of metal, and equipped with three separate Wright Whirlwind engines, enhances performance and safety. If one of these three engines ceases to function properly, the airplane is able to continue on its way. If two stop, the third assures a safe landing by affording a greatly lengthened gliding range. About Sept. 1, National Air Transport will run the first of its three-engine airplanes over the Texas-Chicago route. Announcement as to the date passengers will be carried on scheduled flights will be made shortly."

In 91 days, N.A.T. planes have flown 184,000 miles, with cargo. Ferrying of empty machines and the transportation of executives brings the total mileage up to about 200,000 for the quarter. The N.A.T. fleet, in addition to the Ford monoplane, comprises 10 Curtiss Carrier Pigeons, a De Haviland and a Wright Whirlwind Travel Air. Out of 368 separate flights with mail, the route being split at Kansas City, only 10 forced landings have been experienced. Of these, only one was due to mechanical difficulty—radiator trouble. All other forced landings were caused by heavy weather. In every instance the pilots, after a short delay, proceeded on their way.

"The National Air Transport has made a phenomenal record in its operations from Texas to Chicago for the first three months of its existence." said Colonel Henderson. "The mail entrusted to it has been delivered practically on time every day. It has not had as much mail to carry as it expected to have and it has not had as much as it should have had, due largely to the fact that the Government has so frequently failed to deliver eastern mail overnight to Chicago in time to connect with us. The effect of such failures is to irritate patrons and very seriously to embarrass our traffic solicitation. But even at that, in the first quarter we have safely transported 22,669 lb. of mail—over 11 tons—and have given our patrons 97% perfect service. Our daily load, consisting mostly of business letters, averaging 40 to the pound, is now around 300 lb."



Army Air Corps Photo

Nine Army Air Corps Martin Bombers flying in formation on the occasion of the maneuvers held a few months ago at Wright Field, Fairfield, Ohio.

The Heath Sport Plane

A Low Power Single Seater Cantilever Monoplane of Exceptionally Clean Lines. The Latest Product of the Heath Airplane Company.

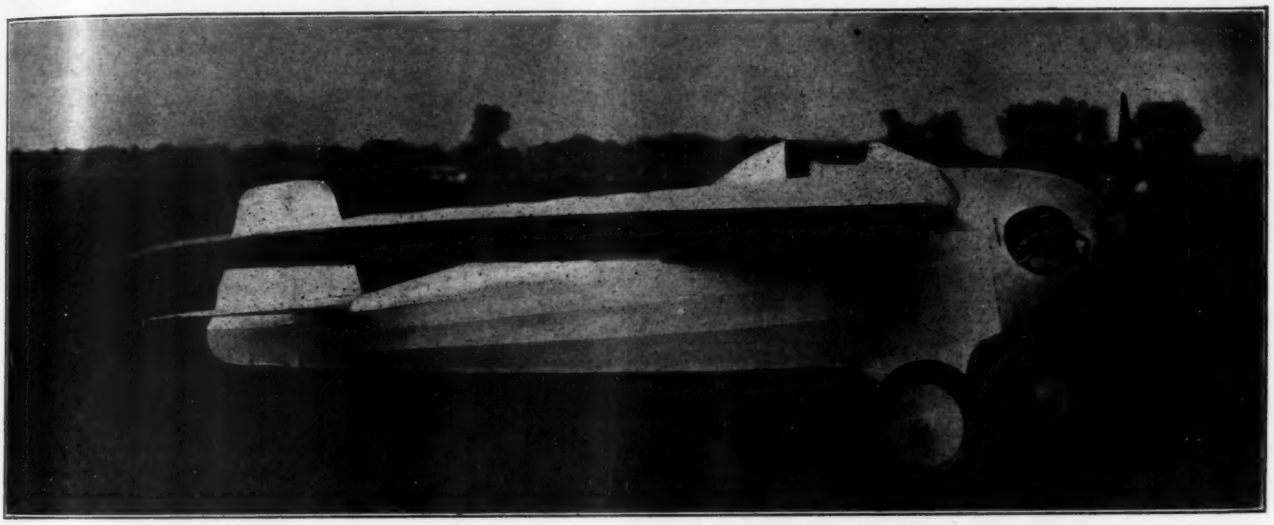
THE HEATH Sport Plane, designed by Clare Linstedt, chief engineer, and E. B. Heath, president, of the Heath Airplane Company of Chicago, and built in the Heath Airplane Company's shop under Mr. Linstedt's supervision, is undoubtedly one of the trimmest little planes brought out this season. It is streamlined throughout and neither struts nor cables are visible to mar its clean lines or cause any undue resistance. It is powered with the Bristol Cherub engine which develops 32 hp. at 2,900 r.p.m. It will be remembered that this engine has a bore and stroke of 3.54 in. and 3.80 in. respectively and a displacement of 75 cu. in.

The machine was built with the greatest care and skill, to get every ounce of performance out of it and keep the weight down to a minimum. The fuselage structure itself weighs only 22 lb. Yet, it is as strong as any big airplane fuselage in comparison. The fuselage is of the Warren truss type, having spruce longerons and struts and three-ply gusset plates. It is covered with fabric in silver finish. The nose is well streamlined with aluminum, which blends in appearance with the rest of the machine.

The wing is of the cantilever monoplane type and is built in one piece, tapering from the root to the tips in both plan and section. It is constructed around two main spars. The front spar is tubular and forms the leading edge. The rear spar is of the rectangular box type, being 10½ in. deep at the root. The pilot's cockpit is built right into the wing, the pilot sitting between the spars. Part of the turtleback is also faired into the wing. The ailerons, of course, conform with the contour of the tapering wing. All control cables and pulleys are contained inside the wing.

Tail Construction

The tail unit is also of cantilever construction and here, too, all cables have been carefully kept out of sight. The landing gear is simple but sturdy. It is only 10 in. in height and is built in a unit with the fuselage. No brace wires are used on this small landing gear.



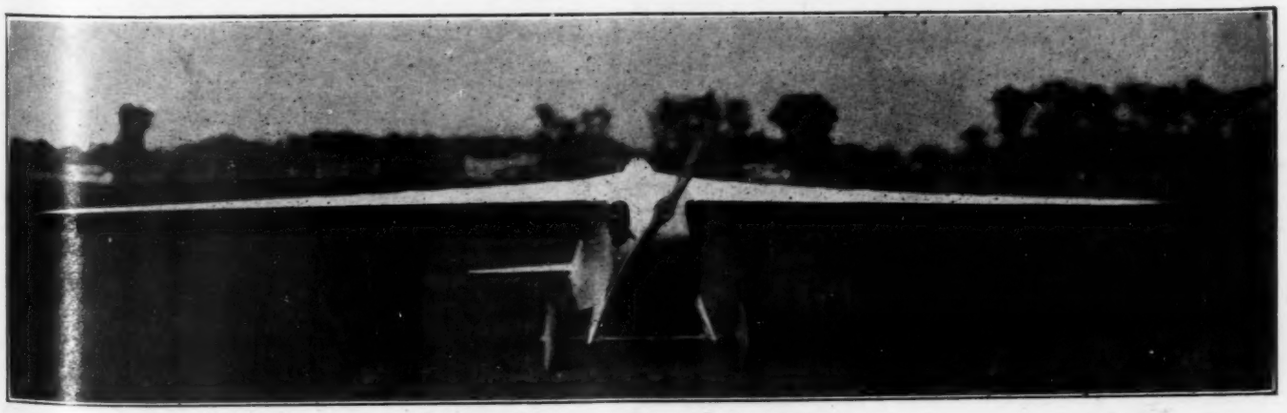
The Heath Sport Plane. The photograph might almost be termed a study in clean lines in airplane design. The engine is the Bristol Cherub, 30 hp.

Specifications and Performance

The plane has been entered in the two light plane races and the 300 cu. in. sport plane race at the National Air Races at Philadelphia. It will be piloted by E. B. Heath.

Detailed specifications of the Heath Sport Plane, together with the manufacturer's figures of performance, are as follows:

(Continued second column page 322)



Another view of the Heath Sport plane (Bristol Cherub, 30 hp.)

REMEMBER — NATIONAL AIR RACES, SEPT. 4-11

MacCracken To Head Civil Aviation Bureau

President Coolidge Appoints William P. MacCracken Assistant Secretary of Commerce for Aviation.

ON AUG. 10, William P. MacCracken, Jr. of Chicago, was appointed by President Coolidge to be Assistant Secretary of Commerce for Aviation, an office created by the Air Commerce Act of 1926. On Aug. 11, he was officially sworn in and immediately undertook the responsibilities of the office. The appointment of Mr. MacCracken marks the nomination of the last of the three Assistant Secretaries for Aviation in the departments of War, Navy and Commerce, respectively, provided for by legislation passed by Congress at its last session.

The appointment of Mr. MacCracken to the charge of civil aviation in the Department of Commerce could not be more satisfactory. He is a pilot and has long been closely associated with aviation in this country. Furthermore, he is one of the most active proponents of civil and commercial aviation and has done much toward development in this field.

Underwood & Underwood Photos

Hon. William P. MacCracken, Jr.

William P. MacCracken, Jr., was born in Chicago and is 37 years of age. He graduated from the University of Chicago in 1911 with the academic and law degrees and served during the War in the Army Air Service, from July, 1917, to January, 1919. During this time he was 13 months at Houston and Waco, Tex.

After leaving the Air Service, Mr. MacCracken returned to the practice of law and immediately began to take an active part in civil aviation development. He became one of the governors of the National Aeronautic Association at its organization and has remained a governor since that time. He is secretary of the American Bar Association and for many years has been chairman of its committee on the law of aviation. In this capacity, Mr. MacCracken has devoted a very great deal of time to a study of air law and his observations and knowledge have enabled him to follow closely, and to a large extent to cooperate in, the framing of a satisfactory air law for the United States.

Mr. MacCracken is council for and has had a great deal to do with the organization of the National Air Transport Company. He has also had active business relations with a number of other air transport projects. He has a very thorough knowledge of civil aviation abroad and participated in the World survey of civil aviation, recently carried out by the committee appointed by the Secretary of Commerce and the American Engineering Council. Furthermore, Mr. MacCracken is chairman of the aviation committee of the American Legion of Illinois, chairman of the aviation committee of the Hamilton Club of Chicago and a member of the Chicago Aero Commission.

Mr. MacCracken has resigned all his connections with private enterprise in aviation to accept the Assistant Secretaryship of Commerce.

Secretary Hoover, in commenting upon the appointment of William P. MacCracken, made the following observations concerning the activities of that section of the Department of Commerce which is devoting its time to civil aviation:

> "William P. MacCracken, Assistant Secretary for Aviation, will take charge of the aviation activities of the department at once. Arrangements have already been made by which a new division of navigational aids to aviation will be established in the Bureau of Lighthouses which will take over the Post Office activities on the mail routes of lighting and marking airways and creating emergency landing fields, and provide for their rapid extension.
>
> "A division is to be created in the Coast and Geodetic Survey for mapping of air routes, and the Army Air Corps is turning over their accumulated material so that the Coast Survey will carry on in future for all services.
>
> "A division is being created in the Bureau of Standards for development of greater perfection in navigational aids to aviation. Investigation on a large scale is being initiated in the development of radio directional work and is considered of the utmost importance.
>
> "There are also problems in the perfection of lighting services under investigation which will be exhaustively developed by the Bureau of Standards. Already some advanced work in this direction has been accomplished by the Bureau of Standards in cooperation with the Bureau of Lighthouses.
>
> "A new division in the Department will be created for safety inspection of airplanes and licensing of pilots in interstate flying. This division will also undertake the work under the law in respect to the registration of aircraft and development of rules of air navigation.
>
> "Another division will be created for the development of national airways and for the promotion of commercial aviation generally.
>
> "This organization has been developed up to this point by J. Walter Drake, Assistant Secretary of Commerce, and will now be turned over to Mr. MacCracken."

The first event of the new division of aviation in the Department of Commerce, after the initiation of W. P. MacCracken was the taking over of a DH4 airplane from the Post Office Department for experimental work in developing airway facilities. The airplane, from Bellefonte, Pa., was received at College Park, Md.

The first experimental work to be taken up by the airplane will be in connection with the perfection of the radio beacon.

(Continued from page 321)

Span	26 ft.
Wing area (incl. ailerons)	78 sq. ft.
Aera of ailerons	10 ft.
Area of stabilizer	4 ft. 6 in.
Area of elevators	5 ft. 5 in.
Area of rudder	2 ft. 8 in.
Angle of incidence	0°
PROPELLER:	Heath special prop.
Cord: (at root)	4 ft. 9 in.
Cord: (at tip)	2 ft. 4½ in.
Length overall	16 ft. 6 in.
Height overall	5 ft. 5 in.
Weight empty	274 lb.
Gas capacity	3.75 gal.
Oil capacity	1 gal.
High speed	109.1 m.p.h.*
Landing speed	34 m.p.h.*

*Speed trials, although unofficial, were timed with stop watches over a four mile rectangular course, and six trials, 3 each way, over a measured mile, showed an average of 109 m.p.h.

REMEMBER — NATIONAL AIR RACES, SEPT. 4-11

Progress of the Airplane Reliability Tour

Travel Air, Verville Airster and Mercury Arrow Lead at Wichita.

WITH THE arrival of the planes competing in the second annual Commercial Airplane Reliability Tour at Wichita on the afternoon of Aug. 13, almost half of the scheduled tour of 2599 mi. had been completed, not with the perfect roll-call of the planes that started from Detroit, Aug. 7, but with an impressive display of the ability of a large number of modern airplanes to tour the country on schedule without unusual incident.

Twenty of the twenty-five planes which started from Detroit glided down to the Travel Air field at Wichita after completing a total distance of 1250 mi. In addition to these machines there also arrived the official plane, the Douglas transport, piloted by Lieut. L. C. Elliott and carrying Detroit newspaper men and the efficient and ever-busy manager of the Tour, H. G. McCarroll, who have sped on in advance at every lap, and the new triple Wright Whirlwind engined Ford air liner which is making the tour without contesting because of the lack of other multi-engined entries. Maj. R. W. (Shorty) Schroeder is piloting the plane along as if it were in the contest in order to get operating data over a long trip and is taking advantage of most stops to fly about over the assembled thousands who have greeted the Tour in every city in a way which could not fail to show how safely maneuverable is even a large multi-engined air liner.

Public Interest in the Tour

In every city which has been visited to date there has been an amazing display of public interest in the planes. Not only have crowds of from five to twenty-five thousand people assembled to witness the arrivals, but throughout the stay in each city the respective landing fields have been a mecca for streams of visitors which have generally blocked all roads leading from the cities.

The very real effort which all of the local committees have put forward to stage the visit of the planes has been rewarded by great local turnouts and a wonderful impression is gained by all who are making the Tour of the complete arrangements for their reception and comfort.

At St. Paul, where a stay was made over two nights, there was gathered an aviation convention in which were represented some sixteen important cities of the Great Northwest mostly by their respective mayors or other important officials. At dinner, after City Commissioner Ferguson had introduced Governor Theodore Christian, of Minnesota, as toastmaster, and the latter had pointed out the advantages which the Northwest might gain by foreseeing the advent of the airplane and avoiding the enormous difficulties which have beset every American city through its failure to foresee the great use of automobiles, President Charles Donnelly, of the Northern Pacific Railroad assured the Convention of the cooperation of his railroad in air development. William B. Stout outlined the projected possibilities of a St. Paul-Detroit air route across the Lake, and W. A. Mara discussed the favorable activities of municipalities regarding aviation.

Not a great deal of use is being made of all the public interest by the manufacturers represented on this Tour. Thousands have crowded up to each plane at each stop, but the pilots have generally been too busy to give any information about their machines to more than a very small number of those who would like to have it. Very few of the planes carry descriptive matter which would acquaint the public further, and what there is seems to be zealously guarded for favored individuals with the exception of the special airplane edition of the *Ford News* of which thousands have been distributed at every stop.

Certainly the automobile business was not built up by keeping the public from getting information about the manufacturer's product. And as long as we have an aeronautically ignorant public we cannot by any possibility have a seriously interested public. It seems that the possibilities of advertising offered on this Tour are being wastefully ignored by the industry. It is true that most of the planes in the Tour are too high-powered and expensive to interest the private owner, but it is the public which must support the airlines to which these planes must look for their market and education of the public mind in planes and things aeronautical would inevitably react in favor of and for the benefit of the manufacturers.

Underwood and Underwood

The arrival of the planes of the Airplane Reliability Tour in Chicago. The machines appearing in the photograph will be recognized as, right to left, the Pioneer Instrument Co.'s Travel Air entered by the Travel Air Mfg. Co.; the Ryan M-1 monoplane; the Buhl-Verville Airster; the Fairchild monoplane; beyond which it is impossible to identify the machines.

REMEMBER — NATIONAL AIR RACES, SEPT. 4-11

The interest of a good many individuals, especially in the cities west of the Mississippi, is at a point ripe for purchase of a small two-place efficient modern plane which would land at 40 m.p.h. or less, is strongly and safely built, has a cruising speed of 75 m.p.h. or over, has an economical modern light air-cooled engine, and which is priced cheaply and sold by an intelligent and solid business organization. Even the planes on this Tour which begin to approach these conditions have not begun to use the sales opportunities offered. The Eaglerock planes from Denver, among the low-priced OX5 jobs, have done some demonstrating and distributing of descriptive pamphlets and have thus done more than others in these directions. The Ryan M-1 has been doing frequent beautiful demonstrations of slow and high speed, maneuverability, and climb, and has frequently shown its control at stalling speed to those few watchers among the general public who realized its significance.

Scores and Results to Date

A neck-and-neck race is being staged by the Travel Air (Wright Whirlwind) piloted by Walter Beech and the Buhl-Verville Airster (Wright Whirlwind) flown by Louis G. Meister for the leadership in the point score, with the Mercury Arrow (Curtiss C6) of the Aerial Service Corporation. piloted by Harvey H. Mummert, keeping so close to the leaders that a slight let-down would change the standing.

All of the figures and results given here and hereafter are unofficial since official results are to be available only at Detroit at the finish, but it is believed that they are accurate. The Airster took slightly longer for its stick and unstick times than the Travel Air, being caught in 12.6 and 8.4 sec. for a total of 21.0 sec. against 8.4 and 8.0 sec. for a total of 16.4 sec. for the Travel Air. However, the Buhl-Verville machine is carrying 800 lb. contest load (pay load) against 600 lb. for the Travel Air and 600 lb. for the Mercury Arrow which gives it an edge in the "merit number" (by which the speed is multiplied to get the score) over its two close rivals.

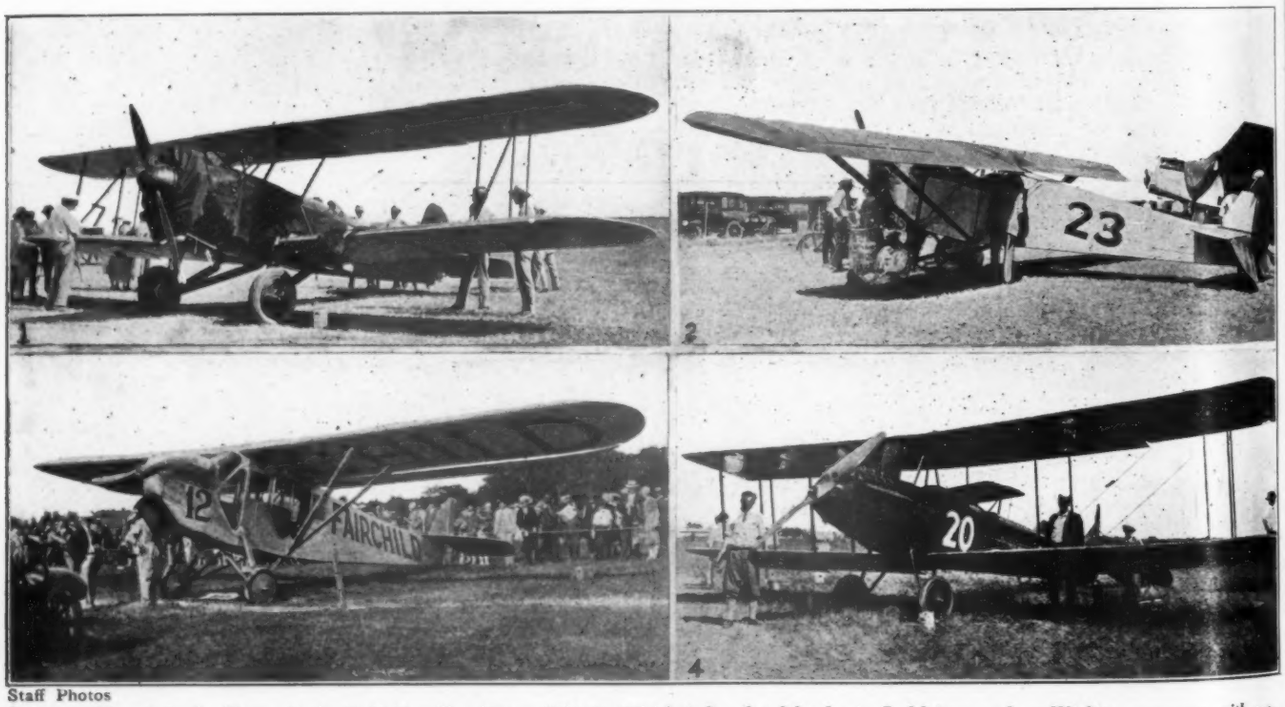
In the accompanying table of data will be found the merit numbers for all the competing planes. The complete data for these numbers was available after leaving Detroit and the lap scores are found simply by multiplying by the speed of each plane for the lap. This number is 2.419 for the Airster, 2.323 for the Travel Air, and 2.047 for the Mercury Arrow.

These figures are of interest because they are scores of all the qualities taken into consideration by the Tour except that of speed. It is worthy of note that all of these three leaders were equipped with brakes which aided them considerably in cutting down their stick and unstick times. One of the Curtiss C6 Wacos was the closest approach to these scores without a brake, with a mark of 2.025. The big Ford three-engine air liner earned a figure which topped them all at 2.534 by getting off in 7.0 sec. and landing in 11.0 sec. before its roll stopped. It carried a pay load of 1500 lb. in this performance but its figures do not affect the standing of the single-engine class.

An even quicker take-off than any of the above was demonstrated by a Hisso equipped Waco owned by D. J. A. Nowicki and piloted by C. S. Irvine, who lifted the machine off in just 6.8 sec.; a beautiful performance. Among the OX5 planes, the Babcock Teal showed the quickest take-off, getting off in 10.6 sec., closely followed by the Pitcairn Orowing at 11 sec. with 300 lb. pay load and one of the two Eaglerock entries carrying 252 lb. which jumped off in the same time. All these tests were made with gasoline tanks full, so that a study of the accompanying tabulated fuel capacities will lend further significance to these performances. One of the Eaglerocks landed in 8.4 sec. without brakes, and the Swallow, with 300 lb. pay load, the same as this Eaglerock entry, stopped in 8.8 sec. The Pitcairn Orowing had the best combined stick and unstick times among the OX5 jobs.

Fewer OX5's

There is a striking falling off in the number of OX5 equipped entries, there being only eight, or less than a third this year against a clear majority last year. This is an unmistakable indication that we are at last turning to more modern designs for power plants, and that the faithful but heavy power plant of so many Jennies and Standards is at last giving way to efficient lighter engines, though, because of the lack of a proved engine in the same power class, most of the manufacturers have entered planes of higher power.



Staff Photos

Some participants in the Tour. 1, the Buhl-Verville Airster (Wright Whirlwind) piloted by Louis C. Meister, and, at Wichita, runner-up with second place. 2, the Ryan M-1 monoplane (Wright Whirlwind) which put up some fine demonstration flights at stopping places, with Vance Breese, pilot. 3, the Fairchild Monoplane (CurtissOX-5) with Dick Depew, pilot, which was well up in the OX-5 group at Wichita. 4, Harold F. Pitcairn (left) and his Pitcairn Orowing (Curtiss OX-5) which he so skilfully landed on one wheel. To Mr. Pitcairn is AVIATION indebted for carrying its representative around the Tour.

PRICE REDUCTION

The Super Swallow

with many added features and refinements

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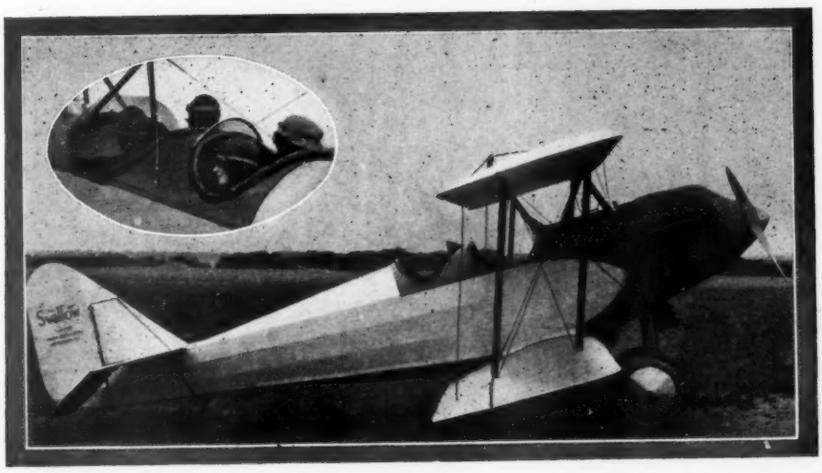
FULLY EQUIPPED, AT OUR FIELD



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Reinforced Steel Fuselage

Increased Climb

Greater Speed

Four Ailerons Insure Ease of Control

Streamline Wires

The Greatest Value in Commercial Aircraft

WRITE OR WIRE FOR DELIVERY DATES

Swallow Airplane Manufacturing Co.
Wichita, Kansas

Walter Beech in the Pioneer Travel Air started immediately on his speedy flight on leaving Detroit and went into Kalamazoo at 119.0 m.p.h. and from there into Chicago at 112.5 m.p.h. for a total point score for the first day of 538.3. But Meister in the Buhl-Verville Airster almost equalled his speed with 200 lb. greater load and finished the day with 542.6 points after covering the distances 114.3 m.p.h. and 110.0 m.p.h., respectively. The Mercury Arrow stood third with 389.5 points with speeds of 92.6 m.p.h. and 97.0 m.p.h. There had been a light following wind up from Kalamazoo to Chicago with an equally weak cross wind on the first hop.

Herbert Photo

Walter Beech, (left) of the Travel Air Mfg. Co., pilot, and Brice Goldsborough, of the Pioneer Instrument Co., with the Pioneer Travel Air (Wright Whirlwind) which was still leading the Tour at Moline. In this photograph, the circular exhaust manifold of the Whirlwind is interesting as is also the cowling of the Scintilla magnetos.

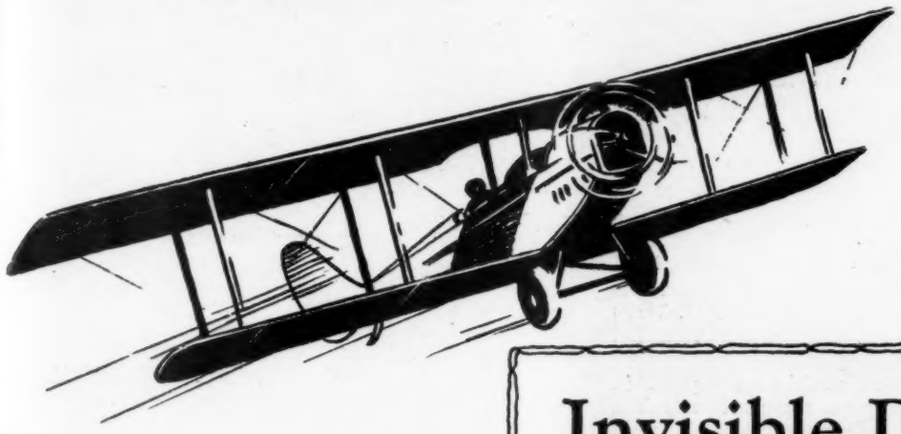
The Airster kept its lead the next day on the Chicago-Milwaukee hop but was late in arriving at St. Paul on Tuesday and reported going down for gasoline on this longest hop of the trip (291 mi.). As a result, in St. Paul, the Travel Air jumped into the lead with 1130.8 points against 1086.8 points for the Airster. The Mercury Arrow, averaging 112.4 m.p.h. from Milwaukee to St. Paul for a total of 918.3 points, stood comfortably in third place with J. W. Livingston's Waco C6 following with 824.3, and Eddie Stirson's Detroiter (Wright Whirlwind) close after at 775.7. Among the OX-5 machines, the Eaglerock led at this point with 517.8 and the Pitcairn Orowing was second with 435.2. These two are both large-area machines, the former with 360 sq. ft. to enable it to get off in the Denver atmosphere, and the latter with 330 sq. ft. as a result of the skillful use of Curtiss Oriole wings with a modern fuselage.

The Fairchild folding-wing monoplane, piloted by Dick Depew with R. M. Johnson to complete the crew, has been consistently outdistancing the other OX-5 equipped planes by several miles an hour, although it is difficult to judge absolute speeds since few pilots are opening their engines wide with half the distances of the Tour stretching far ahead. The new Fairchild product has attracted a great deal of attention at every stop as well as from the other pilots of OX-5 jobs even though a very slow take-off has put it well back in the point score.

A Resume of the Results of the Tour up to Wichita, Kans.

		IDENTIFICATION			WINGS					SPEED RESULTS OF TOUR TO DATE												
										127 mi.	128 mi.		291 mi.	280 mi.	170 mi.	214 mi.	Total				
										Lap No.	Lap No.	90 mi. Lap No.	Lap No.	Lap No.	Lap No.	Lap No.	Lap No. point score				
										1	2	3	4	5	6	7					
															Des						
										Detroit to Kalamazoo	Kalamazoo to Chicago	Chicago to Milwaukee	Milwaukee to St. Paul	St. Paul to Des Moines	Des Moines to Lincoln	Lincoln to Wichita					
										Merit Number Sealed	Kalamazoo Chicago Milwaukee speeds in m.p.h.										
								Pay load (contest load)														
							Piston displacement	Tour contest load	Total wt. plane and contest load	per hp. lbs. per rated hp.												
Plane no.	Name of plane	Pilot	Wing span	Wing area	Brakes Yes or No.	Engine	cu. in.	lbs.	lbs.													
1	Buhl-Verville Airster	Lonas G. Meister	38′ 2″	303	Yes	Wright J-4	786	800	2940	4.0	2,419	114.3	110.0	119.2	106.0	106.1	119.1	120.1	1923.7	2		
2	Travel Air	Walter Beech	53	295	Yes	Wright J-4	786	600	2671	3.0	2,320	119.0	112.5	118.6	137.5	116.9	122.1	130.5	1982.4	1		
3	Travel Air	C. E. Clark	33	295	Yes	Hispano Suiza		400	2571	2.2	1,617	93.5	92.3	99.4	80.3		102.8	105.8	1080.9	7		
5	Alexander Eaglerock	R. C. Rowlands	36′-38′	360	No	Curtiss OX5	502.8	360	2030	4.0	1,570	85.0	81.2	60.4	103.5		89.8	95.0	918.5	10		
6	Alexander Eaglerock	J. R. Williams	36′-38′	360	No	Curtiss OX5	502.8	252	1922	2.8	1,183	83.2	80.5	86.5	95.4		88.9	88.0	697.5	15		
7	Ford 3—Engine Transport	R. W. Schroeder	70′	672	Yes	Wright (3) J-4	786	1500	7800	2.5	2,534	106.0	94.5	90.1	86.0		—	109.0	—	No		
8	Ford Transport	Leroy Manning	58′	555	No	Liberty 12		1000	5569	2.4	0,810	96.0	93.5	88.1	97.4		81.1	97.0	518.3	18		
10	Curtiss Oriole	Charles S. Jones	32′	253	Yes	Curtiss C-6	572.5	360	2356	2.3	1,186	96.2	98.6†	99.1	114.7		84.2	103.5	821.7	11		
11	Mercury Arrow	Harvey H. Mummert	33′	304	No	Curtiss C-6	572.5	600	2690	3.8	2,047	92.6	97.0	97.0	112.4		103.8	107.5	1447.8	3		
12	Fairchild	Richard H. Depew, Jr.	44′	275	No	Curtiss OX5	502.8	260	2283	2.9	0,808	86.4	88.0	89.2	100.3		87.8	92.0	515.5	19		
13	Woodson	Russell Hosler	32′ 1″	307	No	Salmson	1145	600	2796	2.7	*	99.0	91.0	91.1	†		¶	—	—	—		
14	Woodson	Phillip H. Doones	32′ 1″	307	No	Salmson	1145	600	2796	2.7	1,149	89.9	84.7	92.2	63.9		91.3	89.8	647.5	17		
15	Woodson	H. H. Gallup	32′ 1″	307	No	Salmson	1145	600	2796	2.7	*	‡	‡				—	—	—	—		
16	Hess	William A. Mann	30′ 2″	265	No	Curtiss OX5	502.8	257	1930	2.9	1,830	71.1	73.7	48.1	68.5		80.6	81.3	482.7	20		
17	Waco	J. W. Livingston	29	282	No	Curtiss C-6	572.5	450	2267	2.8	2,025	95.0	96.8	101.2	114.3		104.0	103.4	1441.3	4		
18	Waco	E. G. Knapp	29	282	No	Curtiss, C-6	572.5	450	2254	2.8	1,597	103.5	91.3	100.2	115.7		66.2	91.5	1076.6	8		
19	Pitcairn Fleetwing	James G. Ray	38	350	No	Curtiss C-6	572.5	450	2980	2.8	1,679	76.7	77.5	79.0	80.2		81.3	78.5	793.1	13		
20	Pitcairn Orowing	Harold F. Pitcairn	36	330	No	Curtiss OX5	502.8	300	2046	3.3	1,420	74.5	69.9	77.2	84.9		80.4	80.5	773.8	14		
21	Swallow	C. M. Sterling	30	290	No	Curtiss OX5	502.8	300	2020	3.3	1,308	73.7	72.3	78.5	68.1		78.9	81.0	666.5	16		
22	Babcock Teal	A. F. Everett	Out of Contest		No	Curtiss C-6	572.5				1,023	78.0	43.8—	74.6	†			—	—	—		
23	Ryan M-1	Vance Breese	36	260	No	Wright J-4	786	500	2410	2.5	1,260	107.1	107.7	112.7	114.7		111.4	117.2	960.7	9		
24	Peters Dart	Jack Lantis	Out of Contest		No	Wright Morehouse					§	75.3	75.0	79.6	£							
25	Travel Air	C. S. Irvine	33	295	No	Curtiss OX5	502.8				1,730	76.6	72.0	79.9	91.1		56.6	86.8	807.3	12		
26	Waco	Ed. Riddle	29	282	No	Hispano-Suiza		450	2368	2.5	1,758	90.3	96.5	106.1	105.9		101.4	116.8	1259.4	6		
27	Stinson Detroiter	Eddie Stinson	35′ 5″	350	Yes	Wright J-4	786	640	3166	3.2	1,814	100.8	103.2	106.4	116.8		104.3	108.8	1346.8	5		

* Out of Contest. † Did not start on time. ‡ Out at Gary. § Down in Iowa. ¶ Down in fog. £ Non-Contest.



Invisible Dangers

The motorist, driving his car on solid ground, can see the dangers that lie before him, and can slow down or avoid them. But the dangers which the aviator must face are invisible. Directly in the path of his machine may be cross currents, air holes and vortices. He cannot see them in advance and plan to meet them. He must wait until he feels his plane sway and toss, and then he must depend upon his own skill and the reserve power of his engine to bring him through in safety.

The reserve power of any gasoline engine depends to a great extent upon the quality of the fuel it burns and the oil with which it is lubricated. An engine that is in good mechanical condition, is correctly lubricated and is fueled with a high grade gasoline, is always ready to deliver its full reserve power

STANOLIND

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are products of the highest quality, and can be depended upon to bring out every ounce of reserve power that the engine was built to develop.

Stanolind Aviation Gasoline and Aero Oils are available at most landing fields throughout the Middle West. For a map showing the location of these fields, send for our "Aviation Manual," which will be mailed free, upon request.

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(INDIANA)

General Offices: 910 S. Michigan Ave., Chicago

Walter Beech evidently opened wider the throttle of his Wright Whirlwind on Aug. 13 and swooped down to his own field at Wichita from Lincoln at a speed of 130.5 m.p.h. Over half the route a light tail wind was blowing above 1500 ft., and most of the pilots took advantage of it, but over the rest of the distance this speed and those following were made with a light cross wind.

By this performance the Travel Air gained 9.4 points on Meister in the Verville Airster and ran up a total of 1982.4 points, leading the Airster by 41.3 points. The Airster also was clipping through the air to Wichita and covered the 214 miles at a rate of 120.1 m.p.h., bringing its total up to 1923.7 points. The other places at Wichita are as follows: third, No. 11, Mercury Arrow, 1447.8 points; fourth, No. 17, Waco (C6), 1441.3 points; and fifth, No. 27, Stinson Detroiter, 1346.8 points.

The positions of the other fifteen machines are given in the accompanying table, which also gives manufacturer's data from which power and wing loading have been calculated. The leading planes have been holding their positions steadily, but a forced landing of any duration would so reduce the speed on any lap that it would entirely alter the situation among the leaders. In a long test like this the last hundred miles will probably decide a great deal and the wiser pilots are steadily running along with many hundred revolutions to spare to guard against engine breakdown.

Engine Performance

To date, the performance of the magnificent Wright Whirlwind engines has justified fully the confidence of those who have entered Whirlwind equipped planes. No plane powered with these engines has yet suffered a moment's delay of any sort, as far as is known. Of the five leaders to date at Wichita, first, second and fifth places are Whirlwind planes, and third and fourth are Curtiss C6 planes.

Two of the Salmson-engined Woodsons have been unable to continue on account of engine trouble, one falling out at Gary, and the other running into trouble in the midst of Iowa's cornfields. The little Driggs monoplane, piloted by Jack Laass, ran into a fog on the Milwaukee-St. Paul leg and was forced to land and spend the night. On taking off, serious internal trouble in his little Wright Morehouse two-cylinder engine forced him to discontinue the Tour for Mr. Stout's prize for light planes. The OX-5 engined Babcock Teal has had to fall behind, in spite of efforts to continue, but except for these mechanical troubles, the trip has proceeded according to clockwork. Harold F. Pitcairn threatened to do something of interest of another nature in Des Moines when he came in minus a wheel, which had disappeared en route. But he landed his Orowing in soft ground beautifully, slowly, and with the opposite wing down so that the plane merely lazily put its nose into the ground and stopped without the slightest harm to Pitcairn or the writer, who was flying with him. A bent Curtiss-Reed propeller was the only damage.

Fliers Reach Moline

The Tour fliers, with Walter Beech and his Travel Air in the lead, have reached Moline, Ill., as AVIATION is going to press. The flight from Kansas City to Moline was made by Beech in 1 hr., 56 min. A little more than an hour after Beech arrived, all the planes, with one exception, had landed. This plane, the Waco piloted by J. W. Livingstone, was forced down in Baymer, Mo., but was expected to reach Moline in time to resume the flight.

The citizens of Moline gave the fliers an enthusiastic welcome on their arrival, entertaining them at a banquet at the Chamber of Commerce.

The Tour score points on arrival at Moline for the first nine planes are given in the following table:

Plane No.		*Tour points at Moline*	*Tour Order*
2	Travel Air	2556	1
1	Verville Airster	2465	2
8	Ford Transport	2233	3
11	Mercury Arrow	1883	4
27	Stinson Detroiter	1677	5
17	Waco	1617	6
18	Waco	1425	7
3	Travel Air	1413	8
23	Ryan M-1	1243	9

A Correction

In the article on the start of the Airplane Reliability Tour, published in the last issue of AVIATION (Aug. 16), the engines used on the three Woodson planes were referred to as being all air-cooled. This was an error. The three Salmson engines in the Woodson planes are water-cooled. The only air-cooled engines in the Tour, of which there are eight, are Whirlwinds, manufactured by the Wright Aeronautical Corporation of Paterson, N. J.

Lieut. Eugene H. Barksdale

It is with very deep regret that it becomes necessary to record the death of Lieut. Eugene H. Barksdale, of the Army Air Corps, who was killed on Aug. 11, at McCook Field. Lieutenant Barksdale was flying on the occasion of the visit of Assistant Secretary Davison to McCook Field when his machine went into a stall followed by a spin. Lieutenant Barksdale immediately took to his parachute which, however, became entangled in the falling machine. When within a few hundred feet of the ground the 'chute became loosened but not in time to check his fall.

Barksdale, who was thirty years of age, entered the Army Air Service shortly after war was declared and in a short time was sent to France with the American Expeditionary Force. During his service abroad, he was officially credited with bringing down four enemy planes, although unofficial records showed that he brought down seven. Lieutenant Barksdale married Miss Laura Dunn, of New York, about four years ago and a year later he was assigned to duty at McCook Field where he has been engaged in important flight testing work since. He is credited with the development of many new methods in flight testing of airplanes and in this work has on several occasions made successful use of his parachute.

Lieutenant Barksdale was one of the finest pilots in the Army Air Corps and his death is a great loss to the service and the country.

Dickinson Relinquishes Contract

Charles Dickinson, who has the government contract for the Chicago-St. Paul-Minneapolis air mail route, has notified the Post Office Department that he wishes to be released from his contract. A notice of forty-five days is required, but Dickinson has requested immediate cancellation.

A daily loss in operation was given as the cause for this action. W. Irving Glover, Second Assistant Postmaster General, who has charge of this branch of the mail service, is expected to call for bids immediately for the operation of this route. Bids will be opened fifteen days after announcement.

American School of Aviation

The American School of Aviation of 3601 Michigan Ave., Chicago, has recently sent for review their correspondence course on matters aeronautical. The course is very comprehensive, and anyone who has read through the course and can answer all the questions in the examinations would have a very good working knowledge of aeronautics. The course is written in very simple language and a good part of it would be beneficial only to those who have practically no knowledge of aviation. The majority of the course, however, contains very definite and practical information on all subjects from construction and repair, to the theory of flight and the causes of accidents. The course is well illustrated with blue prints and diagrams relating to theory, repair work, and actual planes and engines and their parts. There are fifty lessons to the course and nine examination papers which are to be answered and which are corrected by the officials of the school. While the course is primarily for those who wish to enter aviation, it has great value to those who have had much experience.

The Wright-Morehouse 25-30 hp. Airplane Engine

A Twin-Cylinder Horizontally Opposed Air-Cooled Engine for Light Airplanes.

By GUY VAUGHAN
Vice-president, Wright Aeronautical Corporation

THERE IS one phase of aeronautical development that has attracted a great deal of interest but has made very little real progress to date and that is the production of a really successful light plane. It has been claimed that the light plane is destined to be the flivver plane of the future; that it will be the type that the average man will own and operate for pleasure and for personal transportation. This claim has never been disproved and on the other hand it never has been proved.

It is believed that the principal deterrent in this development has been the lack of a suitable powerplant. Some light plane engines have been developed abroad but the majority of the foreign light planes are driven by more or less modified motorcycle engines. The result has been that several hours of labor had to be expended in keeping the engine tuned for every hour the plane spent in the air.

No American Light Plane Engine

In the United States, light plane designers, in the past, have been faced with the alternative of either attempting to adapt a motorcycle engine or importing a foreign engine. For example, the winner of the light plane races on Long Island last year was powered with a foreign engine. Motorcycle engines are designed to be used under entirely different conditions than are airplane engines. In addition, the motorcycle manufacturers have not felt that the use of their engines in airplanes was of sufficient value to them to make it worth their while doing any special work for the light plane enthusiasts.

The Wright Aeronautical Corporation of Paterson, N. J., has been manufacturing a complete series of engines for all types of present day airplanes. It did not, however, make an engine suitable for the light plane as there was no real demand for such an engine in this country. Within the last two years such a demand has arisen, and, accordingly, the Wright Company has added a light plane engine to its extensive series of models.

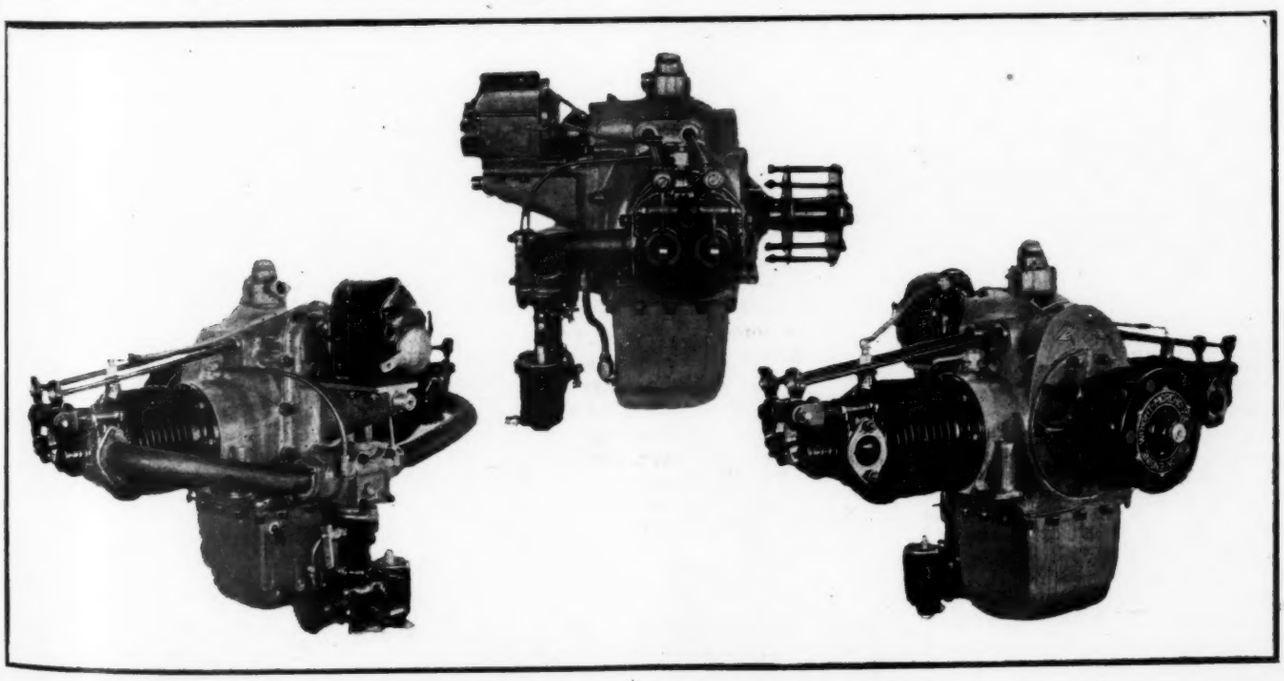
This engine is known as the Wright-Morehouse and was designed specifically for use in light planes. Harold Morehouse, the designer of this engine, was an aeronautical engine designer and project engineer with the Army Air Service at McCook Field before he joined the Wright Company. The present Wright-Morehouse engine is now well in its second stage of development and in no way can be considered a new and untried product. This model was built and tested on the ground and in flight even before the type was taken up by the Wright Company.

Description of Engine

The Wright-Morehouse light plane engine is a two cylinder horizontally opposed, four stroke cycle, air-cooled engine. It has a cylinder displacement of 80 cu. in. to fit in with the classification for light plane engines employed by the National Aeronautic Association and foreign sport governing bodies. With this displacement the engine develops 29 hp. at the normal speed of 2500 r.p.m. At this speed the brake mean effective pressure is 114 lb. per sq. in. The fuel consumption at normal speed is only 2.5 gal. per hr. at full throttle, a very fine performance for an engine of this size.

The following outline of the mechanical details shows that no effort has been spared to make this a reliable, durable, rugged and economical engine. The same materials and fine workmanship used in the larger Wright engines are built into the Wright-Morehouse.

The crankcase is a one-piece aluminum casting with front and rear cover plates. The front cover plate provides for the easy assembly of the crankshaft, while the rear cover plate carries the magneto, oil pump, carburetor, and tachometer drive. A positive pressure oil pump is carried in the rear



Three views of the Wright-Morehouse 25-30 hp. air-cooled engine

cover plate giving force feed lubrication to the main and connecting rod bearings, idler gear bearing, and camshaft bearings. The sump is equipped with an oil level indicator, oil strainer, and thermometer connection. Cooling fins are cast on the bottom to keep the oil temperature correct. The sump holds about three quarts of oil and is filled through the breather.

The crankshaft is a steel drop forging, counterbalanced to reduce vibration, and having two throws at 180 deg. It is drilled for oil passages, giving pressure lubrication to all bearing surfaces. The camshaft is mounted directly over the crankshaft and parallel to it. The camshaft gear is integral with the shaft and is driven by one idler gear at half engine speed. The idler gear is extended to form the tachometer drive connection. The camshaft and idler gear are both assembled through the rear cover plate. Both crankshaft and camshaft are mounted on large plain bearings of ample size. These bearings are grooved for oil passages to the chankshaft and crankpin bearings.

The connecting rods are of forged duralumin and are of H section. The wrist pin bushings are of bronze, shrunk into the connecting rod. The crankpin bearings are babbitt applied directly to the rods. The pistons are the straight cylindrical type, made of aluminum and having crossed ribs supporting the flat piston head. Four rings, three above and one below the piston pin, are used. The hollow piston pins float in both rods and the pistons, bronze end plugs being used to prevent cylinder scoring. The piston pins and cylinder walls are lubricated by oil spray from the crankpin bearings.

Cast Iron Cylinders

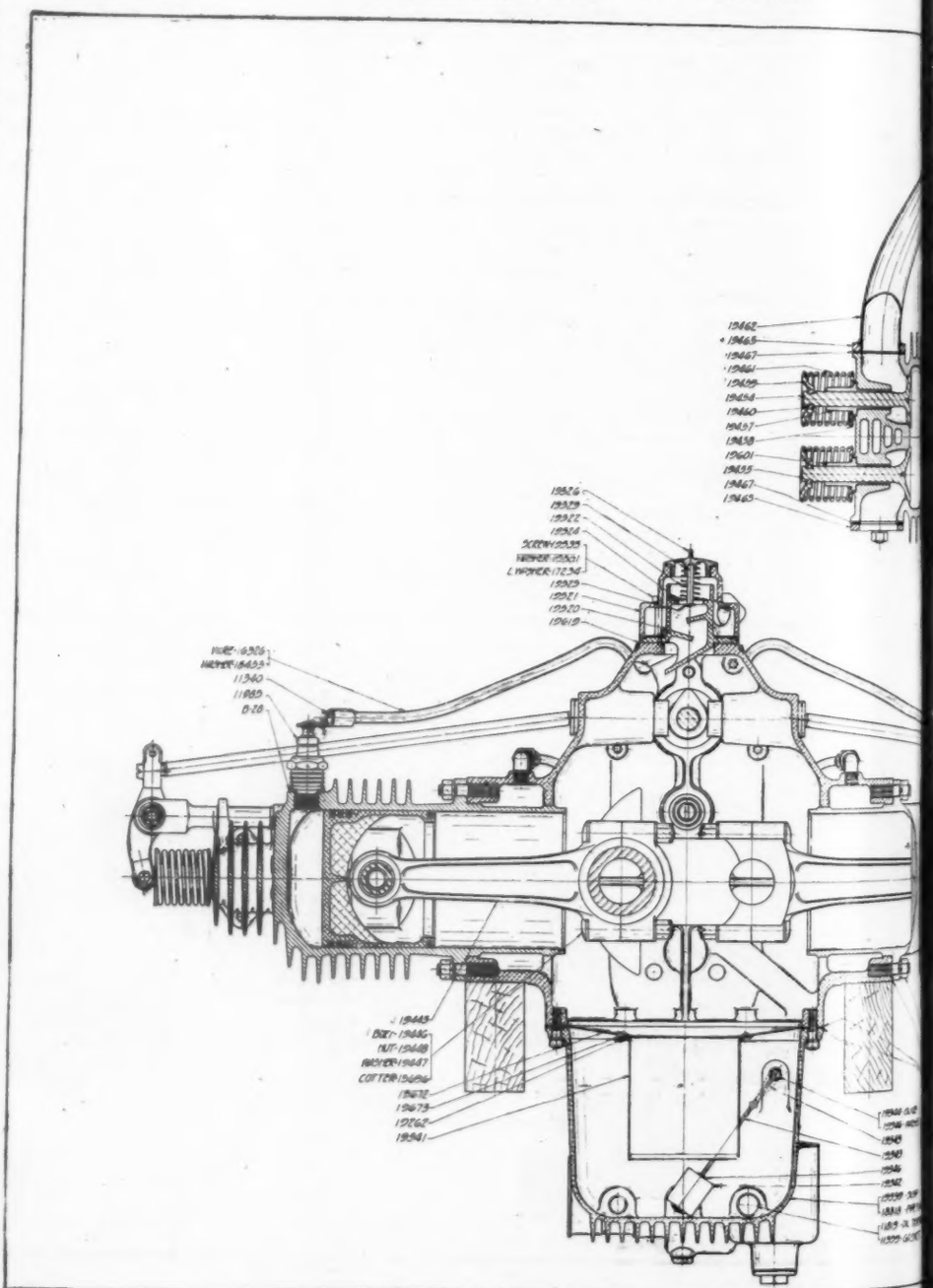
The cylinders are cast iron with integral cooling fins and valve seats. They are attached to the crankcase through the cylinder flange, about half way up the barrel, their location being made by two pilots, one at the flange and one at the end of the barrel. Between these two pilots the crankcase is cored to form closed passages when the cylinder is in place. Bypass oil from the pump is led into these passages serving to cool the cylinder skirts before returning to the sump.

Tulip shaped valves are used, both intake and exhaust having ample diameter and lift. The valve springs are helical and made from special heat treated spring steel wire. Adjustable push rods with ball and socket joints at each end actuate the forged steel rocker arms. Case hardened steel cam followers operate directly on the camshaft. The push rods are so recessed in their sockets that they cannot come out in flight, while the rocker arms are supported on individual forged brackets studded into the cylinder heads.

A single Scintilla magneto, driven direct from the rear end of the camshaft, insures a quick turn for the magneto in starting. The fuel mixture is supplied by a special carburetor through an oil jacketed elbow attached to the rear cover plate. Individual manifolds carry the mixture to each cylinder. Four holding-down bolts fasten the engine to the bearers. All the controls are at the rear of the engine, thus simplifying the installation in the plane.

Specifications

Bore	3.75 in.
Stroke	3.625 in.
Displacement (1.31 liters)	80 cu. in.
Compression ratio	5 : 1
Rotation	anti-clockwise
Weight, dry	89.5 lb.
Power at 2500 r.p.m.; average	29 hp.
guaranteed	25 hp.
Fuel consumption at 2500 r.p.m.;	
average	2.5 gal./hr.
guaranteed	0.55 lb./hp.-hr.
Shipping weight	155 lb.



General layout

The first production lot of ten of these engines has been completed by the Wright Company. The majority of these engines are now either fitted in light planes or are having light planes designed around them. A two seater recently built around the Wright-Morehouse engine showed a high speed of 80 m.p.h., a landing speed of 30 m.p.h. and cruised 32 miles on one gallon of gasoline. This performance gives a hint of what may be done with this engine.

The Future of the Light Plane

The question of the future of light planes is now clearly up to the industry. American aircraft designers have given conclusive evidence of their ability to make the most of the possibilities of any class of airplane. There undoubtedly will be a flivver plane in the future. Whether it will be a light plane in the present meaning of the term, remains to be seen.

The Wright Company is fully prepared to manufacture any number of Wright-Morehouse engines for the industry whenever it calls for them. How many engines the next production order will call for depends on the response from the industry. It is not planned to build any more of these engines in the immediate future. This first lot will afford a service test of the type, and will determine not only the number to be built, but whether or not any modifications will be necessary. Their manufacturing facilities insure the highest standards being maintained throughout. The fruits of their enterprise will be seen at the National Air Races in Philadelphia next month, when some of the first lot produced will power some of the entries in the light plane events.

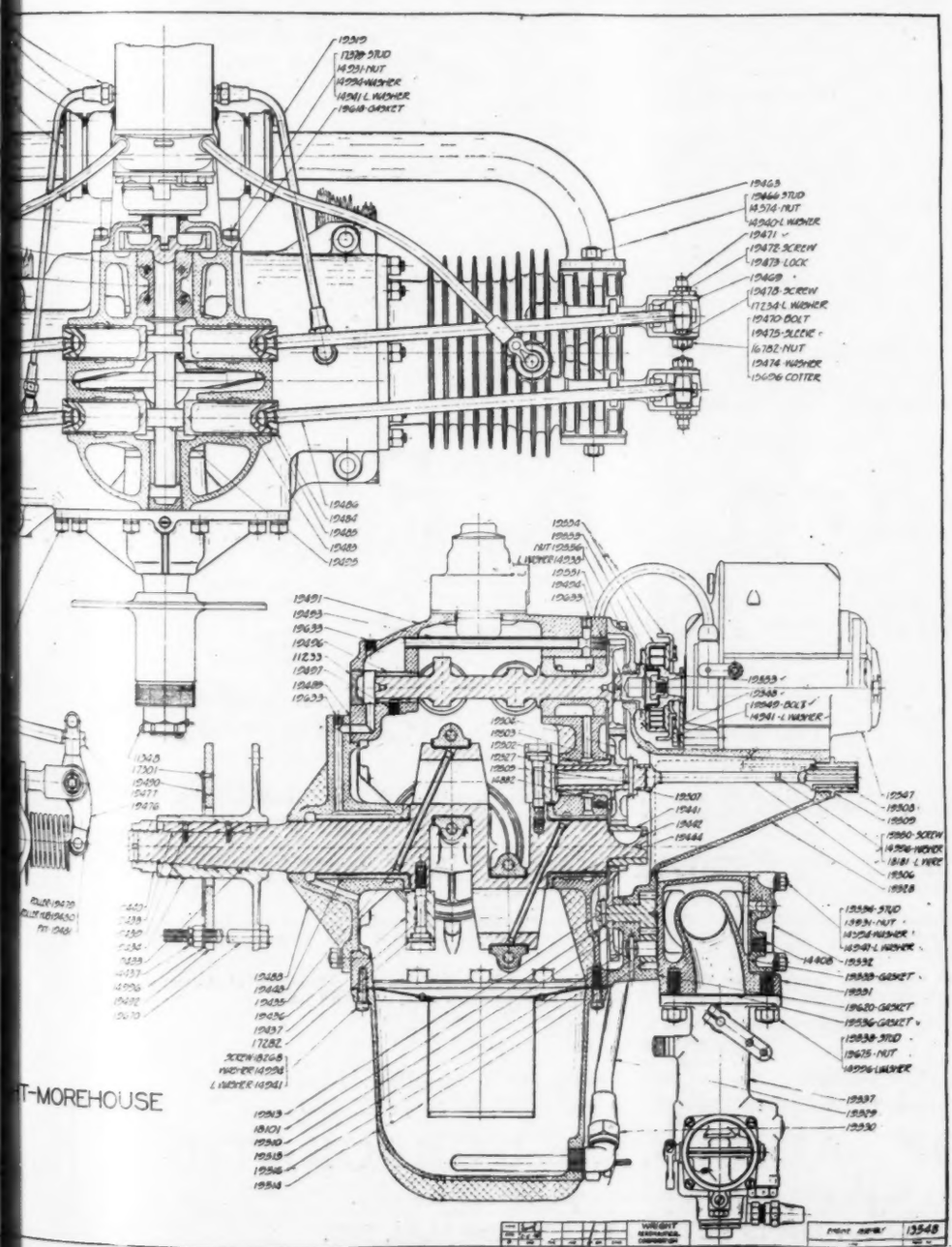
The price of the Wright-Morehouse engine was based on the assumption that a large number were being built, as it was not felt that the light plane builders were in a position to pay the full cost of such an engine manufactured in small lots.

Multi-Engined Possibilities

One purchaser of this type of engine is building a twin-engined light plane to carry two or three people, and expects it to be able to fly on one engine. This construction will give the plane nearly 60 hp., and while it cannot be considered a true light plane, it, nevertheless, embodies light plane ideas. If successful, it will probably be the forerunner of many others of the same type.

It has also been proposed to use three of these engines in a semi-light plane, which would then become a small edition of the Fokker or Ford plane with three Wright 200 hp. Whirlwind engines.

Whatever trend of design in this class of machine the future develops, the Wright Company is prepared to furnish the industry with a suitable engine. It has in mind other sizes of engines that might possibly be required.



...t-Morehouse engine

Barber and Baldwin Merger

Barber and Baldwin, Inc., aviation underwriters, have recently announced their merger with the general agency firm of Harrison Moore and Co. Inc., of New York City. As a result of this change, Barber and Baldwin, Inc., have moved into more commodious offices at 285 Madison Avenue, New York City, N. Y. and are now in a position to afford insurance brokers and others, a first-class service in all forms of casualty insurance, bonds, fire, tourist floaters, aviation insurance, re-insurance treaties, and individual re-insurances. The new telephone number of Barber and Baldwin, Inc., is Ashland 6527, while the cable address of "Avbar New York" remains the same.

New Glider Record

The German pilot Kegel landed his glider 60 km. from the starting point in the Rhôn meet on Aug. 13, thus establishing a ...and more than doubling his pre... new world's record for distance ...vious record set in the Moscow meet.

Side Slips

By ROBERT R. OSBORN

The report has reached us that some advertising bills came down out of the air at Atlantic City, N. J. the other day on which were printed announcements of some sort of a cut-rate shoe sale out in Joplin, Mo. The men who are doing the distributing of advertising from airplanes for that section of Missouri should allow more for the wind in the future; it is probable that the rest of these bills went out to sea.

This brings to mind an interesting hypothetical legal question,—who should pay for the dusting of these southern cotton fields, the farmer on whose field the "dust" actually lands or the chap whose field was being flown over when it was let loose?

Henry Ford's birthday announcement of a new "flivver" airplane is interesting but we are not going to be enthusiastic about the new plane until it has been in use for a few years and has had a chance to develop its own flying clientele. Not that we are questioning the strength or design of the plane in any way, you understand, but there is a possibility of the development of a type of pilot corresponding in characteristics to the present earth-bound flivver driver. This great pest, whose chief aim in life seems to be the passing of as many other cars as possible on steep hills, cutting in ahead in tight traffic unmindful of damage to his own flapping fenders, and stalling in places where stalling really means something, certainly will not be a welcome addition to the air fraternity. However, there is the chance that an aerial flivver may keep better company, so as we said before, we'll keep an open mind on the subject and be content for the present with faint praise.

* * *

We do think though, that Mr. Ford is risking the loss of one of the finest traditions associated with his industry in equipping his recent airplane models with air-cooled engines. What is going to become of that old adage that no Ford is worth anything until it starts boiling over!

* * *

Our friend, the Intrepid Aviator, certainly was an impressive sight when he dropped in to see us last week. He has been spending his vacation at one of the camps for training reserve flying officers, and, having arrived at this camp later than the rest of the crowd, had acquired temporarily a uniform that was certainly a prize. It was so much oversize that he was able to take two steps and turn around in it before the outside of the uniform began to move at all. When we saw him last his one hope was that he wouldn't have occasion to use his parachute while wearing it, being afraid that the uniform might fly off on the way down, leaving him in no fit condition for dropping in on strangers.

* * *

It is pleasing to note the decided improvement in aeronautical advertising since suggestions for more beautiful and interesting advertisements were first made in this column. A program of the National Mile High Air Meet in Denver, Col. has been mailed to us, the cover being tastefully adorned with a shapely young lady clad in a piece of bunting and intently studying an airplane. The publicity director of this meet is herewith elected Second Vice-President of the Better Aeronautical Advertising Association and awarded a year's free dues. Let the good work go on.

* * *

The anniversary issue of AVIATION is responsible for the statement that the weight of one of the new radial engines is 650 lb. "including the propeller hum". If this engine could be installed in a plane with a variable pitch propeller, we might have the first aerial calliope, which should be a welcome addition to any flying circus.

Learn to Fly

$100 — Including Solo

No bond required
No charge for breakage

76 Students Graduated in 1925

Eight years without an accident

Room and board near field at $10.00 per week.

We guarantee to solo our students regardless of the number of flying hours required. We also furnish planes at very reasonable rates for those who wish to qualify for the F.A.I. pilots certificate and we maintain an employment agency for our graduate pilots.

The flying school of the Robertson Aircraft Corporation is one of the oldest and best known in the United States. Our instructors are ex-army aviators and are mail pilots with wide experience and our training equipment is the best obtainable. In over eight years of operation our students have never damaged a ship in their solo flights.

The flying field is approximately six miles from St. Louis and is easily accessible by railroad, street car and hard surfaced roads. It is the largest and best privately owned field in the country and the International Races of 1923 were held there. Mail planes arrive and leave daily.

Our course requires about two weeks, depending on the individual, and after its completion the refinements of the art can be gained only from experience. Commercial aviation is a rapidly growing industry. Don't delay! Enroll now!

It is not necessary to purchase an airplane in order to take this course.

WRITE FOR BOOKLET

Guaranteed Condition Airplanes, Ready for Immediate Fly-Away Delivery, at Prices Ranging from $650.00 to $1,750.00

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AIRPORTS AND AIRWAYS

Chicago, Ill.

By Otto Klein

Saturday, Aug. 7, the day the Ford Tour was scheduled to arrive, began hazy and with a clouded sky. It was doubtful whether the afternoon would bring rain or shine. The sun won, however, and, by the time Casey Jones appeared in the distance, the sky had assumed its old blue and the sun was again shining with all its brightness.

After the good old Oriole had landed the other planes came in fast, and while they were coming in, three Army machines entertained the great mob that crowded one side of the Air Mail field, by doing some formation flying and stunting.

The Ford planes were received with great interest and enthusiasm and as soon as a plane taxiied in position it was surrounded by spectators. The diminutive Driggs lightplane was almost lost under the big protective wing of the big three-engine Ford plane, and newspaper photographers had their time keeping the crowd back far enough to get a glimpse at the little plane. Later in the afternoon several airplanes made exhibition flights. Among these the Whirlwind engined Ryan monoplane proved the outstanding feature. This trim little plane went through some aerial calisthenics that would make a PW-8 look sick. Wherever one heard remarks about the Ford Tour later on, the Ryan monoplane was on every tongue. The way the machine screwed its way straight up into the air without the least sign of stalling was remarkable. However, no less remarkable were its clean cut vertical banks and other maneuvers. The Tour machines left the Mail Field Sunday noon for Milwaukee.

The Chicago Aeronautical Service has delivered the map they made of Oak Park, and have now secured a contract with the Lion's Club of Blue Island to make a complete survey of that city, including a photographic map at a scale of 400 ft. to the inch, covering some six square miles of territory. The survey is being made to assist the city of Blue Island in zoning and park development. A number of oblique views which are also being made will be used to advertise the city at industrial and municipal exhibits during the coming year.

The Chicago Aeronautical Service is putting on a parachute jump and wing walking exhibition every Sunday afternoon from now on. Mitchell made the jump yesterday and will probably do so in the future. The attraction did not fail to draw an immense crowd which resulted in good business for the Aeronautical Service.

Continental Air Service Opened

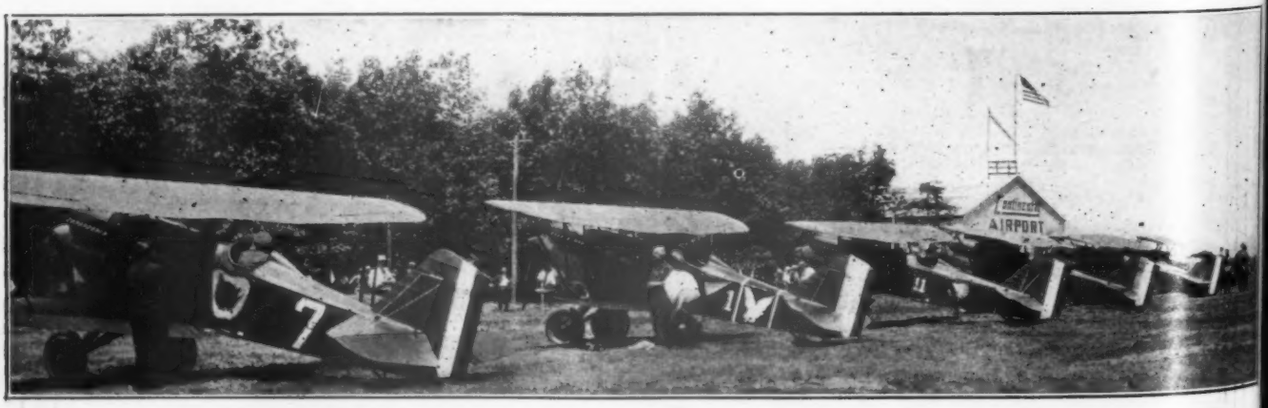
Friday, July 23, marked the official opening of the Continental Air Service, operated by the Continental Motors Corp., between the two plants located in Muskegon and Detroit, and the dedication of the Continental Airport at Muskegon.

Eleven airplanes, including the Continental Motors' Fokker three-engine plane, equipped with Wright Whirlwinds, six Curtiss P-1 Army pursuit planes, two Curtiss O-1 observation planes and one Douglas C-1 transport plane, left Detroit at 10 a.m. for Muskegon and were joined at Grand Rapids by

The Continental Motors three-engine Fokker (Wright Whirlwinds) at Muskegon after the 1½ hr. flight from Detroit

a Super-Swallow from Kalamazoo. The Continental plane, piloted by Lieut. G. R. Pond, covered the 200 miles to Muskegon in 1 hr. 50 min., with President Ross W. Judson, Vice-President W. R. Angell, Harold H. Emmons, President of the National Airways Corp. and Congressman John B. Sosnowski of Detroit, abroad.

More than 15,000 people attended the dedication and witnessed the aerial circus put on in connection with the dedicatory ceremonies. Major Thomas Lanphier, Commandant of Selfridge Field, was in charge of the program.



Curtiss P-1 (Curtiss D-12 engines) pursuit planes lined up on the Continental Airport, Muskegon, Mich.

Talks were given at the field by Vice-President W. R. Angell, Congressman John B. Sosnowski and Congressman J. C. McLaughlin. Harold H. Emmons, chairman of the airways committee of the Detroit Board of Commerce, pointed out that Michigan has been the leader in the automotive industry of the country and has worked itself into an excellent position in the aircraft industry.

New England Notes

By Porter Adams

The Hon. Edward P. Warner, Assistant Secretary of the Navy for Aeronautics, visited Boston recently. He was officially received and saluted at the Boston Navy Yard and afterwards entertained at a luncheon given by Rear Admiral Philip Andrews, Commandant of the First Naval District. While in Boston, Secretary Warner inspected the Naval Reserve Air Station at Squantum, Massachusetts, and flew the different types of planes being used there.

The U.S. Los Angeles was a visitor at our village this week.

The Hon. Malcolm E. Nichols, Mayor of Boston, recently announced that he accepted on behalf of the City the gift of an aerial beacon for the Gilchrist Company, one of Boston's largest department stores. The beacon will be erected on the roof of the Gilchrist Store on the corner of Washington and Winter Streets. While the actual type and method of installation is being left to a special committee consisting of Capt. H. N. Heisen, commanding officer of the Boston Airport, Capt. C. W. Ford, acting air officer, First Corps Area, Lieut. R. D. Thomas, commanding officer, Naval Air Station, Squantum, Theodore G. Holcombe, representing Colonial Air Transport, and representatives of the City, it will probably consist of a 24 in. standard type G. E. revolving aerial beacon, erected on a steel tower on the roof from 40 to 60 ft. above it.

The Boston Chapter of the N.A.A. recently elected officers for the coming year as follows: President, Theodore G. Holcombe, Colonial Air Transport; Vice-President, Professor W. G. Brown, M.I.T.; Secretary and Treasurer, Bernard Weisman, Boston Chamber of Commerce. The following delegates were chosen for the National Convention: Assistant Secretary Warner, Holcombe, Dan Rockford of the *Transcript*, and Lieutenant Thomas. The alternates were C. F. Taylor of M.I.T., E. J. Ovington, Franklin T. Kurt and Daniel C. Sayre.

The 26th Division Air Corps of the Massachusetts National Guard leaves Aug. 14 for two weeks tour of active duty at Langley Field, Va.

Took the Wrong Airplane

A French passenger alighted at the Croydon airdrome, England, from the Imperial Airways plane when it arrived from Brussels on Aug. 10, looked blankly around and asked, "Where's this?"

"It's the London air station", he was told.

"Mon Dieu! It was Paris I wanted to go", said the traveler, producing a ticket for the French Brussels-Paris air liner.

Fortunately the Paris air express was due to leave Croydon a few minutes later, and the Frenchman reached his destination after all.

Yorktown, Va., Flying Field Closed

The Chief of the Bureau of Ordnance gives the following information concerning the closure of the Aviation Field at Navy Mine Depot, Yorktown, Va.:

After Aug. 15, 1926, that part of the Navy Mine Depot, Yorktown, Va., formerly designated as the "Aviation Field" will no longer be available for landing of planes.

The above area will be utilized for the storage of high explosives and the Bureau requests that all planes refrain from flying over this area.

A suitable warning sign, visible to planes flying in the vicinity, will be placed.

PRICE GOES DOWN $400.

PRODUCTION MAKES IT POSSIBLE

THE FAMOUS FIVE PASSENGER L.S.5 *EQUIPPED WITH* 150 *H.P. HISSO MOTOR*, AT LESS THAN THE PRICE OF THE AVERAGE O.X.5 JOBS.

$2495.00 *F.O.B. FACTORY FLYING FIELD*

$2495.00 *F.O.B. FACTORY FLYING FIELD*

FROM THE FACTORY DIRECT TO YOU

A deposit of $500.00 will hold one of these jobs for 60 days. Characteristics of the New L.S.5. All Haskelite veneer fuselage. 45 gallon veneer covered center section tank. Steel landing gear. Steel balanced rudder and flippers. Beautifully upholstered leather. Semi-cabin passenger cockpit seating four passengers. Hamilton propeller. Wings. P.A.F. 3 type all new construction, covered long fiber cotton, finished 6 coats pigmented silver or gold bronze nitrate dope. Side type radiators cartridge core. Outside oil radiator.

THE NEW L.S.5. EASY TO BUY AND EASY TO FLY.

Write today for catalog. *Most for the money.*

LINCOLN AIRPLANE COMPANY, 2409 O Street, Lincoln, Nebraska

Towner, N. D.

By Jake Bertram

A Waco passed over Jake's Airport on Aug. 4, going in the direction of the Canadian border. We hope it stops at our field on the return trip. We extend an invitation to all planes passing this way to stop at our airport. It is situated one mile North of Towner. In the near future we expect to paint our hangar white and also have the name of the city painted in big letters on top of the hangar.

Pilot L. W. Harris returned on Aug. 4, after several weeks barnstorming with Bertram's Hissos and Standards.

United States Air Forces

The Air Corps Technical School, Chanute Field

Practically the entire educational system of the Army Air Corps, as it affects its enlisted personnel, is carried on at the Air Corps Technical School at Chanute Field, Rantoul, Ill. While the various courses of instruction given at this school are confined mostly to enlisted men, a limited number of officers avail themselves of advanced courses of instruction in such subjects as aerial photography, armament, communications, etc.

Chanute Field is situated on the edge of the village of Rantoul, 114 miles South of Chicago.

It is doubtful if there are schools anywhere else in this country which afford vocational training of such a thorough character as that which can be obtained at Chanute Field, particularly in such a brief space of time as six months. The Technical School is one of the reasons why the Air Corps is such a desirable and popular branch of the service to the man who enlists in the Army. Men with very little or no mechanical training, with no vocation to carry them through life, go to the School to depart six months later fully qualified to follow one of such vocational pursuits as photographer, radio mechanic, radio operator, airplane mechanic, aircraft armorer, auto mechanic, engine mechanic, carpenter, etc.

As is natural to assume, the purpose of the Technical School is to train enlisted men along various lines of mechanical pursuits incident to the operation of the Air Corps, this in order to promote the highest operating efficiency possible. The lives of the Army fliers depend on the thoroughness and skill of airplane and engine mechanics, and the best men in that line of work are not too good in that connection. Nothing can better serve to bolster up the morale of the Army flier than the knowledge that his airplane is in the hands of a thoroughly trained and skilled mechanic.

The Commanding Officer of the Technical School is Major William C. McChord, Air Corps, who assumed command on June 30, 1924. Major E. A. Reinburg is the Executive Officer and Captain Charles B. B. Bubb, Adjutant.

Air Secretary to Make Inspections

Assistant Secretary of War F. Trubee Davison began his inspection of Air Corps matters in the field, by a trip to McCook Field, Dayton, Ohio, the week of Aug. 1.

Nearby Air installations, including Scott and Chanute Fields, in Illinois, will also be visited on this trip. This will be followed by visits to Kelly Field, San Antonio, Texas, and other border air posts.

Secretary Davison will probably use air transportation exclusively on these trips.

General Officers of Air Corps

Brigadier General Frank P. Lahm, Air Corps, has been ordered to Washington from San Francisco, Cal., for one month's temporary duty in the office of the Chief of the Air Corps.

Of the three brigadier generals who are assistants to the Chief of the Air Corps, it is contemplated that two will remain in the office of the Chief of the Air Corps—one as Chief of Supply and the other as Chief of Operations and Training. The third general officer will take command at Kelly Field, Tex., the largest field for Air Corps training and operations.

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in Aircraft Supplies Offered at
LOW PRICES

Everything new unless otherwise stated.

The new supplement to our catalog contains over 500 illustrations, write for it.

And a thousand and one other aeronautical items at reasonable prices.

Item	ARTICLE	Price.
1	Paper ball parachute 18″ diameter good advertising stunt box of 24	1.00
2	Aluminum powder, the best way to aluminize your plane per 1 lb. can	1.50
3	Aluminum sheets from 26 to 2 gauge sizes up to 48 x 144″	At market prices.
4	Alumium rivets, flat, round and brazier heads all sizes	
5	Duralinum sheets from 22 gauge up to 5 gauge all size sheets	
6	Duralinum rivets, bolts and wood screws various sizes	
7	Tape, reinforcing ½″ wide plain edge A.S. Spec. 6-83 80 yd. roll	2.00
8	Tape, reinforcing ½″ wide looped edge A.S. Spec. 16027-A 75 yds.	1.75
9	Tape, cotton selvage edge 1¼″ wide 110 yd. rolls	1.50
10	Cotton fabric Govn't Spec. 16004-C 36″ wide 100 yds.	50.00
11	Cotton fabric Govn't Spec. 16004-C 40″ wide 100 yds.	55.00
12	Cable 1/32″ 7 strand Roebling per 100 feet	3.00
13	Exhaust manifolds for Liberty motors each side	5.00
14	Wind shields old D.H. type	.50
15	Glue, hide used hot the best Govn't Spec. 98-14000-E per lb.	.40
16	Glue, Casine used cold Govn't Spec. 14020-C	.50
17	Gage gasoline for Jenny tanks brand new	3.50
18	Magnetos, Dixie 800 brand new complete right or left	25.00
19	Tachometers, new calibrated N.C.R. chronometric with 7½ or 8′ shaft	15.00
20	Altimeter, Taylor 5″ face 15000 ft.	3.00
21	Altimeter, Taylor 3½″ face 25000 ft. slightly used	5.00
22	Altimeter, Schneider 3½″ Face 25000 ft. brand new	10.00
23	Gaskets for OX-5 cylinder base per set of 8	.25
24	Valves Exhaust for OXX-6 Rich per set of 8	3.00
25	Valves Exhaust for 150 Hispano light stem 1.00 ea. heavy stem	1.50
26	Celluloid sheets 21 x 50″ 1/16″ thick per sheet	5.00
27	Strainers Gasoline line with connections Aluminum	3.00
28	Wire manifolds complete with all wires and terminals OXX-6 per set	5.00
29	Piston pins for OXX-6 motor per set of 8	2.00
30	Piston rings for 150-180 Hispano motor beveled or plain	.50
31	Prop covers for Liberty or Hispano made from best waterproof canvas	2.00
32	Crank cases for Liberty 6 Hall Scott motor upper or lower	40.00
33	Fuel pump for Liberty 6 made by Miller, Los Angeles	18.00
34	Oil pump drive shaft with gear L-6	10.00
35	Water pump with gear for L-6	18.00
36	Copper tacks from 3/16″ to 3/8″ long per package	.25
37	Gasoline shut-off cocks for ¼″ pipe	.25
38	Helmets best grade Gaberdine cloth trimmed with leather	4.00
39	Helmets best grade soft leather lined	6.00
40	Goggles Best Grade N.A.K. Resistal non shatterable glass	4.50
41	Flying Suit Waterproof Leatherex made to latest Navy Spec. all sizes	25.50
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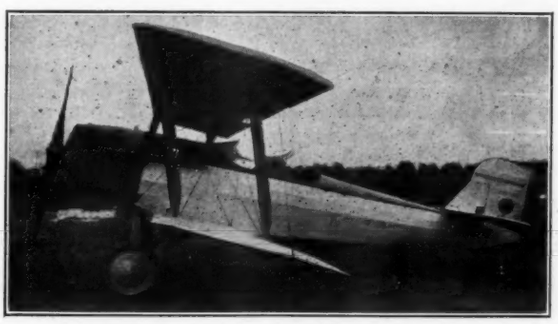

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New Designations For Air Marksmanship

The War Department has authorized designations for air marksmanship, qualification for same to be awarded badges, designs for which are now being prepared for approval. The designations will be: "Aerial Gunner", for qualification with aerial machine gun, and "Aerial Bomber" for qualification with aerial bombs. Decision has not been reached on the full details of the courses leading to the new designations. However, qualification for "Aerial Gunner" will require diving fire at ground targets and fire at towed targets or target gliders descending to earth in a spiral glide after release at high altitudes. The course for "Aerial Bomber" will consist of high and low altitude bombing against both moving and stationary targets.

Asst. Sec. Warner on Inspection Tour

An extensive inspection tour of all Naval Air Stations was begun on July 26 by the Assistant Secretary of the Navy for Aeronautics, Edward P. Warner, when he flew to Hampton Roads in a plane piloted by Lieut. George Cuddihy, U.S.N. Secretary Warner's tour will include all the stations on both the Atlantic and Pacific coasts and the principal airplane manufacturing plants throughout the country. The inspection trips contemplate almost continuous flying on the part of the Secretary for Aeronautics until the latter part of September.

After a thorough inspection of all Naval Air Stations, Secretary Warner plans a similar inspection of the Navy's aviation activities afloat.

The itinerary is as follows:

July 26, fly to Hampton Roads and return. July 27, fly to Philadelphia. July 28 and 29, fly from Philadelphia to New York. July 30 to Aug. 2, probably fly to Boston. Aug. 3, fly from Boston to Lakehurst, N.J. Aug. 4 and 5, return to Washington. Aug. 6, Cleveland. Aug. 7 and 8, Detroit. Aug. 9, Buffalo, N.Y. Aug. 10 to 13, Washington, D.C. Aug. 14 to 16, Pensacola, Fla. Aug. 18 to 30, return to Washington in preparation for trip to west coast. Aug. 31 to Sept. 3, fly to Philadelphia. Sept. 4 to 7, enroute to the west coast. Sept. 8 to 14, San Diego. Sept. 15, Los Angeles. Sept. 16 and 17, Seattle. Sept. 18, leave Seattle for Washington, D.C. Sept. 21, arrive at Washington, D.C.

Navy Alaskan Survey Assists Forestry Service

A report received from the Navy's expedition making an aerial survey in Alaska, in charge of Lieut. Ben H. Wyatt, describes the assistance which has been given to the Forestry Service, the Lighthouse Service and the Fish and Roads Commission.

Lieutenant Wyatt reported that the Forestry Service desired to obtain oblique photographs of certain sections of the region under survey to determine the stand, quality and type of timber in that area. These photographs were obtained in a systematic manner by the naval fliers so that the territory covered by each photograph could readily be spotted by the men of the Forestry Service.

The Forestry Service was also interested in securing the exact location of lakes in the interior with a view of obtaining water power for the pulp industry. J. B. Fleury, District Forester of Alaska, was taken on the flight and, during the inspection trip over Revillagigido Island and the mainland, a low pass and valley were discovered which connected the head of Carroll Inlet and the numerous lakes and streams of the interior of the island, with Loring and Ketchikan. Considerable enthusiasm was expressed by Mr. Fleury over this discovery as it will now be possible to link the entire chain of lakes with Ketchikan and the mainland. An investigation of conditions is now underway by two large pulp and paper mills from the United States, with the idea of erecting factories on the island.

The Fish commission is also being furnished with photographs of the fish hatcheries and the lakes and streams in the immediate vicinity of the hatcheries. Mr. Williams, Superintendent of the Roads Commission, was given a flight for the purpose of obtaining information toward establishing a new route as near as possible to sea level from Ketchikan to Loring and through the Behm Canal.

The Commissions have expressed their sincere thanks for the splendid work done for them by the Alaskan Aerial Sur-

vey Expedition and have stated that the work accomplished could not have been performed in any other manner than by planes without a great expenditure of time, labor, and money.

Naval Academy Aviation Training

The 1926 Summer aviation training at the U.S. Naval Academy, Annapolis, Md., has just started, the 1926 class being the first class under instruction. This is the largest aviation training project yet attempted.

In order to insure the development of flying in the Navy, the Bureau of Navigation has made it possible for each graduate to become familiar with the theory of flight, navigation, gunnery, radio and with general aviation subjects, and in addition the handling of planes in the air.

The ground work is conducted by the departments of the Naval Academy under the direction of the Superintendent. Schedules of employment are arranged by the Commandant and the Head of the Department of Seamanship and Flight Tactics. Capt. H. A. Baldridge, of the Seamanship and Flight Tactics Department is the first Director of Aviation.

After an intensive course in the theory of the various subjects the student officers are given sufficient time in the air to broaden their knowledge of the pilots' duties and to actually conduct themselves in navigation, gunnery, radio and engineering work in the planes.

The planes made available by the Navy Department are flown by Fleet pilots and the first year's work was completed without anything more serious than one forced landing due to engine trouble.

The entire first, or graduating class, is trained. The class of 1926 numbered nearly 400 men. There has been a small percentage of the students who have not passed the physical examination. Otherwise, the entire student body may be considered as the most valuable material for Fleet pilots. The response given to the course has been most encouraging to the officers and pilots who are doing the instructing. The flying and instruction have been responsible for creating a decided aviation atmosphere. No flying is conducted during the academic year but is withheld until the three lower classes are on the practice cruise. The facilities at the Academy for mechanical and scientific training are practically unlimited and there has been assembled aviation equipment which enables the student to know the structure and operation of every part.

A record on each student officer is kept showing his progress and proficiency. The opportunity for an aviation career is open to every graduate, and as the ground work in theory is very thorough, the step to a qualified pilot has been simplified, so that upon completion of this Annapolis course, only six months to two years are necessary to give to the Fleet pilots qualified for all branches of work afloat.

Army Air Orders

Sec. Lieuts. Howard H. Couch and Gordon T. Waite, Air Corps, relieved from further duty and training at Air Corps Bal. & Air. Sch., Scott Field, and will report to commandant for duty.

Sec. Lieut. Norme D. Frost, Air Corps, Brooks Field, to San Francisco, sailing on transport Oct. 28 for Hawaiian Dept.

First Lieut. Carlyle H. Ridenour, Air Corps, will report to com. gen. Ninth Area Corps for temp. duty, pending sailing of transport from San Francisco, Oct. 28.

Staff Sergeant William T. Robinson, Brooks Field, transferred to Air Corps Tech. Sch. Det., Chanute Field.

Sec. Lieut. Edmund Clarence Langmead, Air Corps, promoted to First Lieut., and will remain in present duties.

Sec. Lieuts. Oscar Frederick Carlson and Paul August Jaccard, Air Corps Res., Seattle, to active duty Brooks Field, for six months' course at Air Corps Prim. Fly. Sch., reverting to inactive status Mar. 6.

Navy Air Orders

Comdr. William A. Maguire det. Aircf. Sqdns., Battle Flt., to Navy Yard, New York.

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PUBLISHER'S NEWS LETTER

After several months absence from the pages of AVIATION, these messages will appear weekly and, it is hoped, be the means of bringing the readers and the publisher into closer contact. It will not appear out of place to express, here, an appreciation of the loyal manner in which the paper has been conducted while a holiday has been enjoyed by the publisher. Perhaps, as some friends have written, there has been a freedom of editorial policy which has added to the interest in the paper. It is hoped that the addition of a much refreshed member to the staff will add to this freedom of expression rather than restrain it.

* * * *

To all those who wrote on our tenth anniversary congratulatory letters, some of which were published, a sincere appreciation is expressed. To make friends is not an easy task, especially when there are fifty-two opportunities a year to offend, either by direct methods or through sins of omission. A birthday, however, is always a time of good cheer and, therefore, the greetings that were received added to the pleasure of the occasion more, even, than the writers appreciated. Some of the letters which came and were too personal to be published were appreciated equally as much as those which appeared in the anniversary issue. The complimentary expressions that were received have placed an added responsibility on the publisher and it is hoped that during the next decade, AVIATION may not only retain its present admirers but add to its ever growing circle of friends.

* * * *

The writer has had a rare opportunity of flying over some of the main air routes that are being operated in Europe. In fifty-four days, he flew twenty-one thousand miles and visited twenty-eight countries—and in the two hundred and thirty-four hours that he was in the air, not one of the one hundred and fifteen engines gave any trouble and no forced landings were made. In these days, when the safety of air travel is discussed so generally and when an accident is given such prominence, it is well to remember that all means of transportation have an accident percentage and aircraft must expect to have its record placed alongside automobiles, railroads and steamships. As the trip, just finished, has been considered by many to have been unique in the extent of territory covered, descriptions of those parts which it is hoped will interest the readers of AVIATION, will appear from time to time. Returned travelers are often bores. They often wish to impress those who will listen to their tales with the wonderful extent of their experiences. It is hoped that this will not be the case with the articles that appear as they will be less travel records and more aviation accounts of flying conditions of the many foreign air lines.

* * * *

The opportunity of making such an extensive trip, which extended as far East as Moscow, Constantinople and Bagdad; as far South as Cairo, Palermo and Cascablanca and a criss crossing of Europe from Stockholm, Copenhagen, Warsaw, Prague, Vienna, Genoa, Rome, Marseilles and Amsterdam to Paris and London is due to the many courtesies extended by the governments and air lines of Europe. They opened up their routes to a representative of the readers of AVIATION and as a return courtesy a description of their operations will be given when the time and opportunity permits. The hospitality that is extended to those interested in aviation is beyond a simple description and will be recorded in due course. Any impression that the courtesies were personal would be incorrect, as every American who has had a serious purpose in visiting the airports and flying the air routes has received the same generous welcome. The international relationships among aircraft people is a basic quality that will go far in the future toward creating a better understanding between governments. When travel between countries is so convenient and quick, the old barriers of distance disappear and what yesterday, seemed a long journey, is today an hour-or-two's flight. This fact is being given more and more consideration by the political leaders of all countries and not a small part of the development made possible by government encouragement is based on this advantage.

* * * *

The sudden expansion of American air transport operations and the future possibilities have to a great extent been the result of a similar expansion in Europe. While the conditions in the United States are totally different from those in Europe, there are certain fundamentals there and here that should receive the most careful analysis before the mistakes of earlier air lines are repeated. That air transport will spread its network of routes all over the world within a few years is a certainty. The United States now leads in commercial aviation. Europe has civil aviation subsidized by governments. Both have their fields, the latter leading into the former. If the United States can put air transport on a sound earning basis without subsidies, it will have a powerful effect on aerial development throughout the world.—L.D.G.

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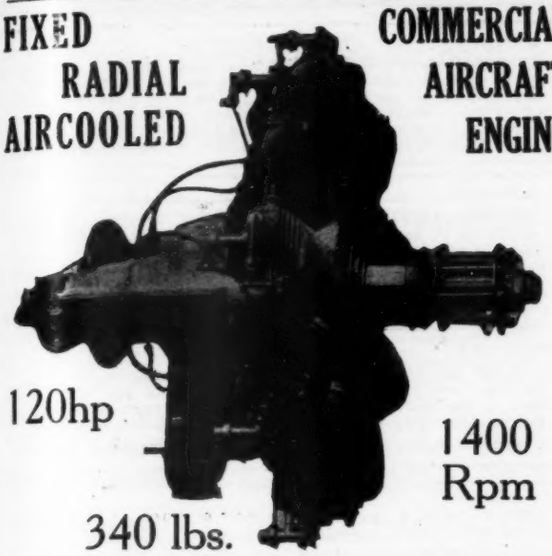

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